N.A.A. BULLETIN

November 1958

In 2 Sections Section 1

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- ► **Farm Management Uses Costs**
- ► **Magazine Publishing and Better Budgeting**

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- *taxicab*
- *medical*
- *office supplies*
- *church funds*
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- *utility*

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Steamship Accounting Aligned to Operations

by ROBERT N. MURPHY

THERE ARE FEW COMPANIES OPERATING STEAMSHIPS, in comparison to the number of motor and rail carriers, and a diversity in operating practices and accounting methods has been followed. The first step in standardization of steamship accounting was the Uniform System of Accounts for Carriers by Water system prescribed by the Interstate Commerce Commission under the authority of the Interstate Commerce Act. This accounting system is mandatory for water carriers under the jurisdiction of the Interstate Commerce Commission. The uniform system of accounting laid down by the commission is primarily an adaptation of the system previously prescribed for railroad companies. Companies operating ships in foreign commerce, consequently, have not adopted this system. However, the existence of this system makes it appropriate to mention here the differences between railroad and steamship operations.

Railroads operate over a fixed right-of-way, must maintain the right-of-way, and generally have fixed schedules. In all of these particulars, steamship companies differ. Their right-of-way is limited only by the navigable waters of the earth; they obviously have no right-of-way maintenance problem; and, in the case of tramp steamers, have no fixed schedules. The railroad can logically have a monthly accounting period, inasmuch as one month's results may be compared with any other month. The length of any voyage may span many months. It is difficult to properly apportion income and expense items between the completed and uncompleted portions of a voyage, particularly when the date the voyage is to end is as yet unknown. The logical accounting unit for a steamship company thus is the determination of profit or loss on each individual voyage.

One of the many objections water carriers make to the Interstate Commerce Commission accounting system is the treatment of depreciation. The commission prescribes the group method of handling the depreciation of depreciable assets. This consists of treating each class of assets as a group and depreciating it as if it were a single asset, making no attempt to completely clear the asset and reserve account of all amounts applicable to a particular item of property

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ROBERT N. MURPHY, Lansing Chapter, 1957, is now engaged in long range planning for the Post Division of General Foods Corporation, Battle Creek, Michigan, having previously been Accounting Manager, and, for another division, Manager of Methods and Procedures. The material for this paper was gathered while Mr. Murphy was controller of an east coast shipping company.

disposed of and prescribing that major improvements or repairs be charged to expense accounts, rather than capitalizing such betterments. The required policy is advantageous to a railroad company, due to the great number of units of depreciable property such a company owns. It is not applicable to steamship companies. A steamship company has comparatively few assets (from the standpoint of quantity) and each unit is of great value.

At the beginning of World War II in 1938, all foreign shipping was placed under the direction of the United States Maritime Commission. Obviously, standardization was required to place financial reports of all companies on a comparable basis. The Maritime Commission, accordingly, prescribed its own uniform system of accounts. This system was designed with the mutual benefit of the commission and the individual shipping company in mind.

Special Features of Steamship Accounting

Despite the diversity of practices prevailing in the steamship industry, there are accounting and operating features in the operation of steamships that are equally applicable to all steamship companies. The primary source of revenue for a steamship company is from cargo carried. Revenues from pier rentals, etc., are normally small and are classified as other income. Income and expense are classified primarily by ship and voyage, each voyage of each ship being considered as a separate venture. The net profit or loss is computed for each voyage, rather than determining profit or loss on the basis of income and expenses received and incurred during an arbitrary period of time, such as a month or a year.

Voyages are frequently of indeterminate length and begin and end between the first and last days of a calendar period only by coincidence. Voyages that are not completed as at the end of such month or year become a problem, inasmuch as corporations are required to file tax returns on a yearly basis. The practice followed by steamship companies is to treat all revenues from uncompleted voyages as deferred income and all expenses applicable to uncompleted voyages as deferred expenses.

In the case of both freight and passenger revenue, payment in advance has been the custom. Therefore, the revenue from a particular voyage will be received and accrued early in the voyage, whereas it is most difficult to properly estimate and accrue the expenses for the remainder of the voyage. If uncompleted voyage income and expense were not treated as deferred items, the result would be to distort profits by increasing them for voyages not yet completed at the end of an accounting period. Likewise, voyages which were uncompleted

at the beginning of an accounting period would result in a disproportionate amount of expense, inasmuch as the income would have been included in the prior period's accounts. Thus it may be seen that the revenue and expenses of a steamship company for a given period, except for other income, will be those applicable only to voyages terminating within the period. This procedure, provided it is systematically followed, has been sanctioned by the Internal Revenue Service and is used by most steamship companies.

The discussion so far has assumed the situation of a steamship company owning and operating its own vessels. Frequently, steamships are "chartered," the term being a maritime expression meaning the rental or lease of a vessel. Such charters may be either for a specified number of voyages, with the duration indeterminate, or may be for a specified period of time. In either case, the charter may be a "bare boat" charter where only the vessel is chartered, the charterer to furnish the crew and provision the vessel, or an "equipped vessel" charter where the vessel is provided completely manned and provisioned. In the case of a time charter, which is for a specified period, the accounts of the owner of the vessel are kept as a function of time in the usual manner. The determination of profit or loss on each voyage is of no significance. The revenue from the vessel then bears a direct correlation to standard accounting periods. On the other hand, a charter for a specified number of voyages would merely substitute the charter income for freight and passenger income, and the accounts would be kept on a voyage basis.

Governmental subsidies provide an additional source of income not normally found in commercial enterprises. If a subsidy is based on the length of a voyage, it would be included with voyage revenues. If the subsidy is a flat sum (bearing no relation to the number and length of voyages), it should be included as other income.

Depreciation is normally computed on a straight-line basis, with an estimated life of twenty years from the time the vessel is built, based on the assumption that it will not be economical to operate after twenty years without extensive repairs and renovations. The "cost" of the vessel normally includes all costs incurred in the purchase and transporting the vessel to the port at which it is first put in service, this cost including the cost of "shakedown" cruise, if any.

The time during which a vessel is in port, either discharging or loading cargo, is referred to as "layover" time. The cost of such layover time is treated in various ways. One method is to consider layover time as overhead expense not to be allocated to voyage expense. Another method is to absorb it in voyage expense by having the termination date of one voyage and starting date of another voyage coincide. Still another method is to allocate the expense, either

at the end of the year among all completed voyages for the year or to voyages on the basis of a standard allocation percentage. The least complicated treatment is to have termination and starting dates coincide, with the exception of long time layovers for repairs or during a period of inactivity of the vessel. In the latter event, the layover time would be treated as a separate voyage and all expenses would be separately accumulated, thus facilitating computation of repairs, etc., especially if the repairs are to be capitalized. This procedure is to be preferred to the yearly apportionment of layover expense, for the speed with which final voyage profit or loss may be determined.

Operating Organization Afloat and Ashore

An ocean-going ship at sea is like an autonomous island government. It is an independent unit. It has no physical contact with any land mass and its destiny is entirely within the control of the ship's captain. The captain (or master) is, in effect, the absolute ruler of the ship. While on the high seas, his power is supreme, even to the power of life or death in cases where the safety of the ship demands such action. A ship cannot function under a conference operating plan. A well-defined flow of authority is required for safe operation. The captain is in full charge of his ship. Under his authority, the ship is customarily divided into three major "departments": the deck department, the engine department, and the steward's department. Each department head reports directly to the captain.

The deck department is normally headed by the first mate. He is responsible for all matters pertaining to the ship, except those which specifically come within the province of the other two departments. The engine department is in the charge of the chief engineer. All matters pertaining to the repair, operation and maintenance of the ship's power plant, including motive power, electricity, and heat, comprise his responsibility. The steward's department is concerned with the "housekeeping" functions of the ship. It is headed by the chief steward, who is responsible for the feeding, sheltering and the general accommodations of the crew. Each of the three department chiefs has full authority over his department, subject only to the superior authority of the ship's captain.

When in port, the ship comes within the authority of the owner's agent in that port, who has the authority to decide what cargo will be carried, etc. However, the ship's captain is still responsible for the ship's seaworthiness, and his authority is supreme in all such matters.

The chart in Exhibit 1 illustrates a typical freight steamship corporation's organization. The president receives his authority from the board of directors

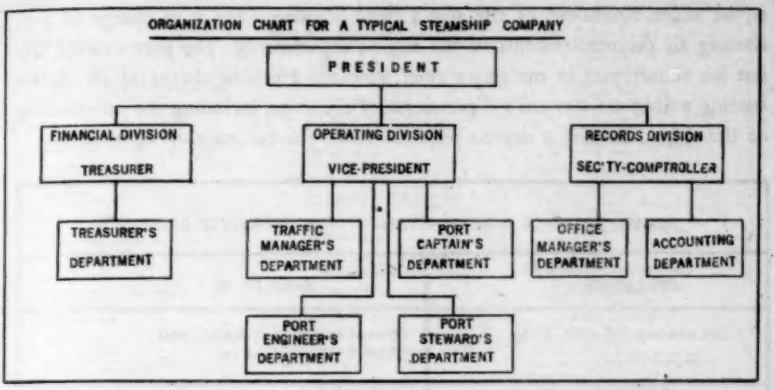


EXHIBIT 1

and is responsible for the operations of the corporation. He is assisted by the other corporate officers, the vice-president, the treasurer, and secretary, each of whom has responsibility for one of the three main divisions of the corporation.

The treasurer is in charge of the financial division. All matters affecting the corporate financing come under this division, as well as the receipt and disbursements of cash. The clerical work of cash receipts and disbursements is handled within the treasurer's department, which may be further divided into a payroll section, a cash receipts section, a cash disbursements section, etc.

The work of the comptroller and of the corporation's secretary is so closely related that the work has been combined in one records division, headed by the secretary-comptroller. The normal accounting work is handled by the accounting department under the direction of the chief accountant. The service sections, such as file, stenographic, mail, etc., as well as general office matters, are grouped in the office manager's department.

The operating division, headed by the vice-president, is separated into four major departments: the traffic manager's department, the port captain's department, the port engineer's department and the port steward's department. Planning and direction of ships' operations are divided among these four departments. The traffic manager is in charge of solicitation of freight and the loading and unloading of the cargoes, including the preparation of bills of lading, quotation of freight rates, and all other matters relating to freight. The port captain corresponds to the ship's captain; he is in charge of the general requirements of the ships, such as arranging for pier rental, towing services and, in general, the shore equivalent of the ship captain's duties. He is also in charge of purchasing all the items needed by the deck departments. The port engineer

is the shore equivalent of the ship's chief engineer. He is in charge of purchasing all the requirements of the engine departments. The port steward also has his counterpart in the ship's chief steward. He is in charge of all matters coming within the steward's departments of the ships, including the provisioning of the ships. Exhibit 2 depicts responsibilities for various ship operations.

NORMAL SEQUENCE & RESPONSIBILITY FOR STEAMSHIP OPERATIONS	
OPERATION	HANDLED BY
Servicing of the Ship	Operating Department and Ship's Departments
Obtaining Cargo	Traffic Department
Documenting Cargo	Comptroller's Department, from information supplied by the Traffic Manager's Department
Receiving Cargo	Ship's Deck Department
Loading Cargo	Ship's Deck Department
Transporting Cargo	Ship's Deck Department
Unloading Cargo	Ship's Deck Department
Delivering Cargo	Traffic Manager's Department
Accounting for Voyage	Comptroller's Department
Voyage Statistics	Operating Division, Records Division and Financial Division

EXHIBIT 2

System of Accounts

The chart of accounts illustrated in this paper (Exhibit 3) has been largely modeled on the United States Maritime Commission system. The account numbering system has been completely revised, however, to permit effective use of data processing equipment. Only those accounts which are common to all steamship companies operating tramp freight vessels are shown. In some instances, specific detail (fourth digit) accounts have been indicated for illus-

EXHIBIT 3

tration. Where a third digit account is kept, it may or may not be supported by subsidiary ledgers. The word "control" should be appended to the account title to indicate presence of supporting detail.

The system of numbering accounts used in this paper is designed to be equally adaptable to either hand or machine bookkeeping methods. For this reason, the code symbols have been confined to four-digit numbers, using conventional techniques in digital significance coding. Reading from left to right, each digit in the account number has a special significance. The thousands digit designates a major account group, such as assets. The hundreds digit determines the next subdivision; within the asset group, for instance, the 100 group is reserved for current asset accounts. The tens digit indicates a specific

group control account, and the units digit is used to identify a specific detail account.

Account 1221 will serve as an example. The first digit places it in the asset, (1000) group, and the second digit identifies it as an inventory account, all such accounts being assigned the group 200. The third digit indicates the specific inventory group, "vessels stores—aboard," and the final digit signifies the specific type of such inventory, in this case, "food."

The major groups have been assigned the following numbers:

1000 Assets	6000 Completed voyage income
2000 Liabilities	7000 Completed voyage expense
3000 Net worth and miscellaneous	8000 Administrative income
4000 Uncompleted voyage income	9000 Administrative expense
5000 Uncompleted voyage expense	

Account groups 4000 and 5000, relating to uncompleted voyages, although shown on the balance sheet under 2000 (liability accounts) and 1000 (assets accounts) respectively, have been assigned first digit major group numbers to facilitate the tabulation of completed voyage results without re-coding each income and expense account. When a voyage is completed, all account balances are transferred from the "uncompleted" groups to the "completed" groups, without changing the last three digits of the account numbers.

XXXX STEAMSHIP CORPORATION

Captions for Statement of Profit and Loss for Months Ended 19..

GROSS PROFIT ON VOYAGES:

Completed Voyage Income
Completed Voyage Expense
Gross Profit on Voyages

OTHER INCOME:

Terminal Operations
Gain on Disposal of Equipment
Interest Income
Agency & Brokerage Fees
Subsidy Income
Mail Contract Income
Miscellaneous Income
Total Other Income
Total Gross Profit & Other Income:

ADMINISTRATIVE EXPENSE:

Departmental Expenses
Terminal Expenses
Insurance Expense
Taxes, other than Payroll and Income
Dues and Entertaining
Auditing Expense
Legal Expense
Bad Debts
Miscellaneous
Total Administrative Expense:

PROFIT BEFORE PROVISION FOR INCOME TAXES:

PROVISION FOR INCOME TAXES:

NET PROFIT:

NOTE: Statement has one caption column and monthly columns for month and for year to date (last month and this)

EXHIBIT 4

Evaluation of Operations

The financial statements of a steamship company are prepared in conventional form with a balance sheet to show financial condition and with operating results shown by a statement of profit and loss. Deferred voyage income and expense and revenue are shown on the balance sheet as the last items in liabilities and assets supported by a summary of the principal classes of expense and revenue for each uncompleted voyage in a separate statement appended to the balance sheet.

XXXX STEAMSHIP CORPORATION

Captions for Summary Statement of Completed Voyages

For Months Ended 19..

INCOME:

- Freight Income
- Charter Income
- Mail Contract Income
- Subsidy Income
- Other Income
- Total Income

EXPENSE:

- Deck Department
- Engine Department
- Steward's Department
- General Operating

EXPENSE (cont'd.)

- Wharfage & Dockage
- Cargo Handling
- Brokerage
- Miscellaneous
- Total Expense

GROSS PROFIT ON VOYAGES:

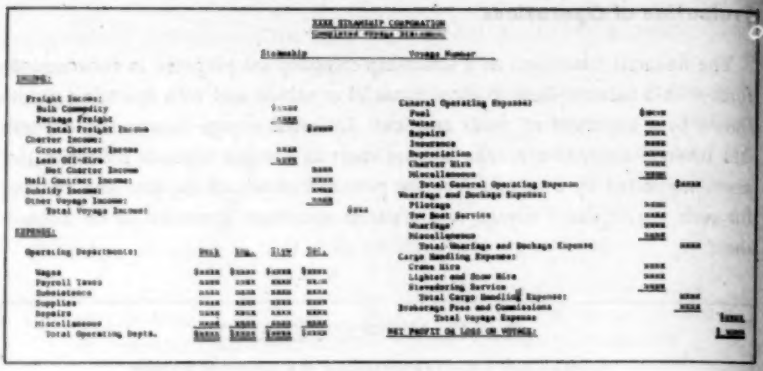
STATISTICS:

- Number of Voyages This Year
- Number of Voyages Last Year

EXHIBIT 5

The statement of profit and loss for a steamship company differs in many respects from that of other commercial enterprises. The principal activity of the company lies in its voyages. Accordingly, for a steamship company, we find gross revenues from completed voyages, less total costs for the voyages, leaving gross profit on voyages. All other items of revenue and expense are included on a time basis in accordance with normal commercial practices, leading to the conventional profit after provision for taxes. The completed voyages statement, in turn, is supported by a fully detailed statement prepared at the close of each voyage. Illustrative profit and loss and completed voyages statements, as well as the detailed statement for a single completed voyage, are represented in Exhibits 4 to 6.

Operating management would normally be provided with a breakdown of



XXXX STEAMSHIP CORPORATION
Completed Voyage Statement

Steamship _____ Voyage Number _____

INCOME:

Freight Income:					General Operating Expense:		
Bulk Commodity			$xxxx		Fuel	$xxxx	
Package Freight			xxxx		Water	xxxx	
Total Freight Income				$xxxx	Repairs	xxxx	
Charter Income:					Insurance	xxxx	
Gross Charter Income			xxxx		Depreciation	xxxx	
Less Off-Hire			xxxx		Charter Hire	xxxx	
Net Charter Income				xxxx	Miscellaneous	xxxx	
Mail Contract Income:				xxxx	Total General Operating Expense		$xxxx
Subsidy Income:				xxxx	Wharfage and Dockage Expense:		
Other Voyage Income:				xxxx	Pilotage	xxxx	
Total Voyage Income				$xxx	Tow Boat Service	xxxx	
					Wharfage	xxxx	
EXPENSE:					Miscellaneous	xxxx	
					Total Wharfage and Dockage Expense		xxxx
Operating Department:	Deck	Eng.	Stew	Tot.	Cargo Handling Expense:		
Wages	$xxxx	$xxxx	$xxxx	$xxxx	Crane Hire	xxxx	
Payroll Taxes	xxxx	xxxx	xxxx	xx.x	Lighter and Scow Hire	xxxx	
Subsistence	xxxx	xxxx	xxxx	xxxx	Stevedoring Service	xxxx	
Supplies	xxxx	xxxx	xxxx	xxxx	Total Cargo Handling Expense:		xxxx
Repairs	xxxx	xxxx	xxxx	xxxx	Brokerage Fees and Commissions		xxxx
Miscellaneous	xxxx	xxxx	xxxx	xxxx	Total Voyage Expense		$xxxx
Total Operating Depts.	$xxxx	$xxxx	$xxxx	$xxxx	NET PROFIT OR LOSS ON VOYAGE:		$ xxxx

EXHIBIT 6

the revenues and costs of each voyage on a per-day basis, arrived at by dividing the number of days of the voyage into the items of revenue and costs. The cost elements would be further subdivided into costs per day for days spent in port, as opposed to days at sea. The type of vessel operated, the size of the crew, and other variables make it difficult to state a common normal cost-per-day for all steamship companies. Within the same company, for the same class of ships, the evaluation of daily operating costs in port and at sea gives the most significant clue towards the cause of variances. Standard costs per day can be pre-determined for the elements of cost for a particular ship and the comparison of actual costs on a daily average basis thus provides the major control comparison against standard costs for identification of areas requiring particular managerial attention.

Further financial evaluation of operations is based, in the case of a freight-carrying steamship operation, on costs and revenues per ton of cargo per day. This standard of evaluation, coupled with the per-day operating costs compared with per-day standards, gives management a definitive frame of reference for identifying areas that may be the subject of fruitful action.

Organization of a Railroad's Accounting Function

by R. D. PLUMLEY

RAILROAD ACCOUNTING IS PECULIAR UNTO ITSELF and cannot be applied to all railroads in the same manner. In the early days of railroading, various departments of the railroad had their own bookkeepers and, to a limited extent, their own statisticians. This was gradually changed to establishment of a central audit office with divisional or regional branches, usually under the jurisdiction or supervision of the operating department. In more recent years, with the development of various types of adding, computing and bookkeeping machines, together with punched cards, the trend has been to the creation of centralized machine bureaus under the jurisdiction of the accounting department. This centralization has materially helped in the extensive research required to ease railroad's accounting, statistical and auditing problems. The Bangor and Aroostook, together with a great many other railroad systems, is working toward a definite routine to regularly examine existing methods and practices for the purpose of improving the flow of work.

Although, fundamentally, railroad accounting is comparable to that of any other industry, it differs in particulars and especially in that railroad's books and records of account must be maintained under the rules and regulations prescribed by the Interstate Commerce Commission. Then, too, there are conditions peculiar to the railroad industry which place an especial burden on management reflected, perhaps to a lesser degree, in the work of the accounting department. For example, no other industry employs men and women of such varied skills and professions. And these employees are scattered over a vast expanse of territory, creating a problem in the submission of source information to a central accounting section. Further, a very complex method of paying the various crafts has resulted. This poses a real problem in the assignment of duties and makes the position of timekeeper a technical one. In train and engine service, for example, in addition to the conventional straight time, pro rata overtime and punitive overtime, there are conversions in pay rates from through freight rates to local freight rates and there are such payments as constructive allowances, mileage payments and guarantees. Further, after a standard railroad payroll has been prepared, it is distributed to some 145 various operating expense accounts. All accountants are familiar with payroll deductions but it is a little startling to find that on our railroad there are 26 standard deductions, either on a weekly or monthly basis.

The accounting department of the Bangor and Aroostook Railroad is broken down,

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R. D. PLUMLEY, Bangor Chapter, 1957, is Comptroller and General Auditor of the Bangor and Aroostook Railroad Company, Bangor, Maine, having entered the service of this company as Assistant General Auditor in 1950. He began his career in railroad accounting in 1920, with the Rutland Railroad Company in Vermont. Mr. Plumley served in various accounting positions and was Comptroller and Treasurer of the Rutland Company immediately prior to his transfer.

for reasons of efficiency and supervision, into eight sections, each with its own working supervisor and each having its own particular type of accounting work to perform. The sections are freight, audit, ticket audit, rates and revisions, freight claim, disbursements, car accounting, general audit and machine bureau. I will attempt to briefly analyze the duties and responsibilities of each section and give as much insight as is practicable in limited space into the somewhat involved procedures necessary to produce the final results used in submitting reports to management, the Interstate Commerce Commission and other regulatory bodies.

Freight Audit, Ticket Audit, Rates, Freight Claims

The freight audit section's primary responsibility is the proper accounting for all freight shipments handled. An indication of the volume of work is about all that can be offered here. In a recent representative month, this section processed 12,196 waybills consisting of "local received" 1500, "interline received" 5800, and the balance roughly 4800 "interline forwarded" shipments.

The ticket audit section performs the accounting functions for all tickets sold by our agents, conductors and bus operators, and all "foreign" roads reports of tickets sold to points on our line. The various kinds and classes of tickets received each month are checked to determine the correct form, number, class of ticket and rate and, on interline tickets, the routing, junction points, etc., have to be noted in order to make the correct divisions of revenue to foreign roads. After this, these tickets are "typed" to each road and summarized and mailed out by the close of the following month. Outside of accounting for tickets, this section also accounts for milk and cream shipments and furnishes a complete analysis of the results of dining car operations, broken down to show the number of meals served and amount, the number of liquor servings and amount, the number of persons served each month by trains, and the average revenue per trip and per person.

The rates and revisions section was set up primarily for checking rates on waybills and issuing corrections. Originally, this covered only interline received and local waybills, but the forwarded waybills have been added, along with the functions of checking rates and extensions on prepaid shipments, verifying advances and, furthermore, checking the routing on all carload shipments. By checking the routing on outbound shipments, in the event an agent has made an error in his route, we are often able to have the car intercepted and routing corrected. This saves the company considerable money in claims due to agents' errors, since, if there is no published rate via the route the agent has inserted on waybill, the destination carrier will protect the published through rate and charge this company the difference between the combination rate and the through rate.

During the year 1957 the section received 2,187 local claims and 2,235 "foreign" debits, making a total of 4,422 loss and damage claims for the year. Total amount paid for local claims was approximately $148,000, of which $54,000 was for overcharge and $94,000 for loss and damage, most of which was paid to claimants in Aroostook County. (Our proportion of total claim payments was $31,272 or about 2 mills per $1 of revenue, which is less than 1/6th of the national average.) Of the accounting department as a whole, this particular section deals most directly with the company's patrons and has, I believe, created a great deal of good will through prompt settlements and is one of our best contacts for good public relations.

Car Accounting; Disbursement; General Audit

The car accounting section handles demurrage records, embargoes and, in conjunction with the tabulating bureau, per diem and mileage reports, and car records. A brief outline of the mechanics of compiling car records may be of interest. Freight cars are stencilled with the initials of the owning road and are numbered. The stations are also numbered. When cars are moved in a train, the conductor fills out a report which includes all cars handled, showing initial, number, kind of car, weight of car and contents, point taken and lift (by station number) and date. When run is completed, the reports are mailed to the car accounting section where they are audited, mileage made by each car inserted opposite car number, and separated as between loaded and empty. They are then handed to the tabulating bureau where cards are punched for each car, giving complete information.

After records are all in for the month, the cards are sorted between our road, and "foreign" cars. The Bangor and Aroostook cars are re-sorted by classification and series. The "foreign" cars are separated by ownership. Record books are then printed. Records covering "foreign" cars are kept only while on the line. Records showing movement of our cars are kept, covering on-line movement from station to station and off-line movement from one road to another.

When cars are delivered to another road, the delivering road compiles a statement called an interchange report, listing initial and number, loaded or empty, date, point interchanged and other information. Both the delivering and receiving road receive copies. Cars shown on this report are worked in the record books. On "foreign" cars of roads not a direct connection with the delivering road, a "junction slip" is mailed to the owning road giving initial, number, loaded or empty, kind, date, road from and to, and junction point. In this way, car owners keep track of their cars and can tell over what railroads their cars move and their present location.

Bangor and Aroostook cars travel all over the country and may be off line from one or two days to several years. For example, B.A.R. 10049, box car, was delivered to the Maine Central Railroad February 21, 1950, and returned by the Maine Central to the B.A.R. May 10, 1952, off line 2 years, 2 months and 19 days. The car was interchanged between railroads 96 times and moved over 49 different roads.

The disbursement section prepares all vouchers in payment of bills received from others, averaging approximately 1400 per month, with 500 bills per month being originated in this section against other railroads, companies and individuals. Personnel in this section prepare our so-called "O.S." reports to the Interstate Commerce Commission, separate operating expenses between freight, passenger and common, and are responsible for the correctness of all invoices received, the prompt handling to avoid loss of cash discounts, and many other related duties.

The general audit section is more or less confined to the finished product, and the results of all other sections' computations ultimately find their way into the general or subsidiary ledgers which are maintained by this section's personnel.

The Machine Bureau and Its Future Development

The machine bureau, which has been in operation relatively only a short time, has already absorbed a great deal of accounting work heretofore done manually and is an integral part of our future planning. At present we are doing in this section, in whole or in substantial part, payroll preparation, freight accounting, car records, traffic analysis and traffic density, with an out-

look toward further applications to machines as time progresses.

Without going into detail on the operation of this section, it may be possible to visualize the volume of work being done when it is noted that the number of cards that are being put through our key punches for a representative month are: car records 110,000, payrolls 48,000, freight accounting 39,700 cards or over two and a quarter million cards per year, many of which are punched the second time for key verification.

We have definite plans for the extension and expansion of work to machines and are seriously considering the use of electronics. Among the applications planned and, in some instances, already started, are inventory control of some 35,000 items, receipts and deliveries of material, cost accounting (starting with our mechanical and engineering departments but eventually expanding to include cost data for all major departments), accounts receivable, accounts payable and, eventually, mechanical posting to the general ledger, thus making the preparation of journal entries unnecessary in their present form.

We are also considering the use of mark-sensing. Briefly described, mark-sensing means that anyone who originates information at the source can, by use of a pencil containing a graphite lead, mark manually the appropriate columns on a standard tabulating card and, when these pre-marked cards are received in the central machine bureau, they may be fed directly into a machine which "senses" these pencil marks each time they appear. Since each marking completes an electrical circuit, a hole is automatically punched in the appropriate column, thus greatly reducing the need for trained key-punch operators.

We have a research group under the leadership of our machine room supervisor which is actively studying the possibility of card-to-tape and tape-to-card applications, utilizing teletype or other comparable means of transmission. Such an installation for use, say, in connection with car records and statistics would, we feel, be of great value. With proper equipment installed, let us say, at Oakfield, Northern Maine Junction, and in the accounting department, information could be originated at Oakfield with respect to traffic going off line via Northern Maine Junction and, simultaneously, the information would be received at the other two locations. That means that all the data relative to a train being made up at Oakfield, such as car number, loaded or empty, commodity, route, etc., would be available at the junction point and in the accounting department before the train actually arrived at destination.

We have also recently formed a subsidiary company, Machine Accounting, Inc., the services of which are being quite generally used, with the hope that we may be of service to the community in making available to small companies which cannot justify an installation of their own, the advantages of punch card accounting.

A Farm Management Utilizes Flexible Budgetary Control

by L. B. KELLOGG and J. C. GILSON

THE FARM OPERATOR HAS A COMPELLING NEED for techniques to improve his effectiveness as a manager. Spectacular changes have occurred in the production techniques of farming during the last fifty years. Science and research have been the primary forces behind the technological revolution in agriculture. Chemists, botanists, engineers, and geneticists have teamed with the animal, plant, soil, and other agricultural scientists to introduce hundreds of new products and methods of production. Every year new and better varieties of grains and grasses are produced; spectacular developments in animal nutrition outmode last year's feeding practices; new fertilizer formulations, more efficient machines and equipment, lower cost buildings—all of these innovations call for a continual change in the technical methods of farming. The technological revolution in agriculture has confronted the farm manager with a complex decision-making environment. There is a great need for "tools and techniques" to assist the farm operator in the management and control of his business operations. In spite of the advances in physical and biological research, however, no corresponding advance has been made in the science of farm management.

This paper gives a brief, historical review of the evolution of accounting and budgeting techniques in farm management up to and including the modern concept of cost accounting and flexible budgetary control, a technique which has gained recognition in industry. The use of this technique in farm management will be demonstrated by the development of an example based upon an actual application which has been made to a poultry enterprise in a large, multiple enterprise farm in Manitoba.

L. B. KELLOGG is Executive Consultant, Stevenson & Kellogg, Ltd., Consulting Management Engineering, Vancouver, British Columbia, and has been associated with this firm since 1946. Prior to this, he was affiliated with Stevenson, Jordan & Harrison, Inc., New York. Mr. Kellogg joined N.A.A. in 1946. DR. J. C. GILSON is an Agricultural Economist and an Associate Professor at the University of Manitoba, Winnipeg, Manitoba. The authors extend acknowledgment to Mr. S. A. Searle, Jr., of the Searle Grain Company for his helpful criticisms during the development of this paper. Mr. Searle also kindly consented to provide the empirical data from the operation of the Searle Farms at East Selkirk.

Evolution of Accounting and Budgeting Techniques in Agriculture

Before discussing the evolution of accounting techniques in agriculture, it might be interesting to observe what has happened in industry. For several decades general financial accounting was deemed to be adequate for managerial control in corporate business. Financial accounting was really the out-growth of single-entry bookkeeping. Over the years, general financial accounting has reached a highly developed stage in corporate industry. The major end-products of the financial system of accounting have been the profit and loss statements and the balance sheet showing the assets, liabilities, and net worth. However, in spite of new accounting devices and elaborate subsidiary records, financial accounting is limited and inadequate with respect to providing current cost control information to management. During recent times, managers in industry have been eager to adopt supplementary accounting methods in the field of cost accounting to fill this need.

Developments in recent years in industrial cost accounting do provide detailed cost information for managerial control. Cost accounting by itself, however, has several limitations. Failure to apply caution in its use may lead to many abuses and even misleading conclusions. Arbitrary allocation of fixed or joint costs to every product in the firm, even if valid, has little meaning from the standpoint of managerial control in the short-run. Another limitation of actual cost figures by themselves, from the management point of view, is the historical nature of the data. Costs accumulated and analysed long after management has had to make operational decisions have little value.

The increased application of budgets has not only promoted a revolution in the methods and procedures used by the cost accountant in corporate business but has made him an indispensable part of the management team. Budgetary control and standard costs have been developed to assist management in controlling the business. Budgets and standard costs assist management to make estimates and plans for the future, to analyze the variation between estimated and actual results, and to develop criteria with which to evaluate the efficiency of operations. Budgeting and cost accounting have thus been coordinated and integrated into a unified and efficient tool for the management of a business enterprise.

Contrary to the situation in industry, where financial accounting was emphasized and developed earlier than cost accounting, in agriculture it appears that the accountants have emphasized cost accounting in the initial stages of development. In the United States, Roberts developed a course in farm account-

ing in 1874 at the Iowa Agricultural College[1]. In 1920, Professor Hays at the University of Minnesota began definite cost accounting research[2]. The early cost accounts at Minnesota represented the beginnings of an economic study of farm management that has been in continuous operation ever since. It is interesting to note that, during the first twenty-five years of the Minnesota program, only cost accounts were considered.

Dr. Spillman, one of the pioneers in farm management in the United States, did as much as anyone to stimulate the use of farm accounts. He was credited with the following "economic agricultural law:"

> "In any group of 100 farmers, taken as they come anywhere in the United States, there are between fifteen and twenty farmers whose average labor income is approximately four times the average labor income of the whole group."[3]

From this empirical "law," it was firmly believed that an accounting analysis of the practices of the successful farmers could be used to improve upon the management practices of the low-income farmers. Even today, it is common to find the results of farm accounts analysed in the fashion of comparing an individual farm or the average of a group of farms against the top ten per cent of the farmers. This technique of "comparative analysis" presumably shows the low income farmer how to manage his farm more efficiently.

The movement towards farm accounting also had an early history in Canada. Some of the first studies of farm production costs were instituted in Ontario. Professor White at the Manitoba Agricultural College published an extensive bulletin on cost accounting procedures in 1916[4]. The thought was heavily emphasized in this early bulletin that farmers had to keep farm accounts in order to understand, analyze, and improve their farm business. Farm accounting studies followed later on in the other provinces of Canada. In 1923 the Dominion Bureau of Statistics published the average cost per acre of producing different grains for the various provinces. These cost studies were terminated in 1925 after three years of experience[5].

Cost accounting studies gained widespread popularity in both Canada and the United States between 1900 and approximately 1930. It was generally

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[1] Warren, G. F., "The Origin and Development of Farm Economics in the United States," *Journal of Farm Economics* Vol. XIV, 1932.

[2] Pond, G. A., "Fifty Years of Farm Records in Minnesota," *Journal of Farm Economics* Vol. XXXV, May 1953.

[3] Smith, C. B., "The Origin of Farm Economics Extension," *Journal of Farm Economics*, Vol XLV, 1932.

[4] White, G. G., *Farm Cost Accounting Bulletin*, No. 21. Manitoba Agricultural College, Winnipeg, September, 1916.

[5] *The Canada Year Book*, Dominion Bureau of Statistics, 1925, page 272.

believed that cost accounts would provide the effective tool for better farm management. After 1930, however, it appears that cost accounting was gradually losing favor with economists as a method of managing farm business. After twenty-five years of experience it appeard that cost accounting, by itself, was not providing the effective base on which to make farm management decisions. In fact, the pendulum of thought had swung so far from farm accounting at one time that Benedict made the following observation:[6]

> "Nevertheless, it does not appear to the writer that the tendency of many farm management students in recent years to avoid all mention of cost terms is altogether a wholesome one. What seems to be needed is a more definite attempt to deal with farm costs in a realistic way and to use some form of cost analysis as the basis on which a better and more authoritative synthesis (budget) can be built."

Why Farm Cost Accounting Has Lacked Effectiveness

The question must be raised as to why the accounting procedure in farm management was not being completely accepted after twenty-five years of experience. The cost accounting technique, as generally used, had several limitations. First, there was a failure to use caution in the allocation of joint and fixed costs among enterprises. This was especially true for supplementary and complementary enterprise relationships. The consequence of this failure is well expressed by Benedict:[7]

> "It has been customary to try to apply some uniform method of charging costs against the various lines of production and to show varying returns from these as differences in profitableness. The unreality of this procedure is well illustrated in the familiar results from middle western costs studies which nearly always show oats produced at a loss and nearly always show alfalfa produced at a large profit; yet the acreage in oats continues to increase and that in alfalfa continues to remain relatively stationary."

Another writer suggested that the cost studies failed to give effective guidance to farmers because no careful distinction was made between the controllable and uncontrollable causes of variation in the operations of the farm[8]. Still another limitation of cost accounting was the historical nature of the data. The cost account was for the most part backward looking. The farm manager

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[6] Benedict, W. R., "The Opportunity Cost Basis of the Substitution Method in Farm Management," *Journal of Farm Economics*, Vol. XLV, No. 4, Oct. 1932.

[7] Benedict, W. R., *ibid* page 385.

[8] Bennett, M. K., *Farm Cost Studies in the United States*, Food Research Institute, Stanford University, California, 1928. See Chapter VI.

should be interested not only in an historical analysis of his business but in a technique which would permit him to make forward plans more effectively.

The next step in the development of better techniques for the management of a farm business was the budgeting method. The budgeting technique was referred to as the "method of substitution" by Black[9]. In its early stages of development, the budgeting method was not too highly regarded by a number of students of farm management[10]. The evolution of the budgeting technique in farm management has been surrounded by considerable controversy. One group has argued that the budget could never provide the base for meaningful management decisions. Others contended that the budget method "undoubtedly takes a long step in the direction of realistic treatment of the management problem as it confronts the farmer."[11] A more recent statement on the place of the budget in farm management is expressed by Hopkins and Heady:[12]

> "Records and accounts, taken by themselves, yield only history of the past. While generally interesting, this is of little benefit to the farmer. The crux of successful operation lies, rather, in well-conceived plans for the future (i.e. the budget)."

The cost-account-budget approach had a strong appeal to workers in farm management. It was believed that the cost accounts would provide the control of the business and would also provide the data inputs for the budget. The budget, in turn, would provide the base for management in making sound decisions with respect to future operations of the business. The cost-account-budget approach has now been on trial for nearly thirty years. How effective has it been as a tool to the farm operator in terms of control and decision-making? The results have been less than satisfactory. There appears to be considerable disappointment with respect to the progress made. The cost-account-budget technique has not had the universal application among farmers that was anticipated. In addition to this, the technique, where applied, has not proved as effective to the farm manager as was expected. Meaningful results are not being produced in many instances. The idea is sound, the need is there, but the practical application of the cost-account-budget approach has been relatively unsatisfactory.

There appear to be several major reasons for this failure. First, there has been a paucity of data coefficients and other standard data of the right type

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[9] Black, J. D., Introduction to Products Economics, Henry Holt and Co., New York 1926. Page 251.

[10] Benedict, M. R., *op. Cit.* Page 387.

[11] Benedict, M. R., ibid, page 387.

[12] Hopkins, J. A., and Heady, E. O., *Farm Records*, 3rd Edition, Iowa State College Press, Ames, Iowa, 1949, page 10.

to give any reliable and meaningful base to budgeting methods used in farm mangement. Second, most cost accounts have not been closely integrated with the farm budget. Third, there has not been any systematic analysis of the costs in the account in relation to the budget. Fourth, not enough attention has been directed to setting up the budget. Fifth, no clear distinction has been made between the short and long run in the analysis of the account and in the construction of the budget.

The last point deserves further emphasis. While most people would admit the difference between the short and long run in farm management research, the distinction is lost in many cost account and budget studies. Frequently, cost account studies designed for short-run, decision-making purposes, are implicitly involved with long-run considerations. For example, many cost-account studies involve the allocation of fixed or long-run costs, such as interest on investment or depreciation charges on equipment, among the various enterprises of the farm. At other times, attempts are made to allocate overhead costs among the various enterprises. The question might well be raised as to the value of these items to the operator in the short-run. Once certain long-run investments or commitments have been made, the things of importance to the farm manager in the short run are the "controllable" items of expense with respect to each enterprise or cost center.

The cost-account-budget approach to farm management can hardly be rejected, however, simply because it has apparently not provided the farm operator with a meaningful or realistic base on which to make decisions. The idea is sound. It must be modified and adapted to the "real" needs of the farm manager. The flexible budgetary approach now to be described will illustrate how this approach can be made to work.

Limitations of Common Cost Comparison Practices

A common practice is to compare current operating costs with similar costs for the preceding month or for the same month of the previous year, or to compare costs against an average, non-varying figure, i.e., a "fixed budget," which represents what is expected will be experienced during the current year. While such comparisons are better than none at all, this practice is beset with difficulties and pitfalls.

Comparison of costs to a previous period may be quite misleading, as the costs of such a period with which the comparison is made may have been unusual for some reason, in which case it becomes necessary to analyse the different sets of costs and the conditions existing at that time to determine a

true explanation of any differences which may exist between them. Even worse, a trouble spot may be overlooked entirely because costs in the previous year may have been so high that current costs may appear in a favourable light, though actually higher than they should be. Other factors tend to make this sort of comparison difficult, such as changes in salaries or wage rates, changing prices of materials or variations in the level of activity between the two periods.

Comparison of costs against a fixed budget representing what is expected will be experienced during the current year may be very misleading where actual conditions differ appreciably from those obtained at the time the fixed budget for the year was established. This would be particularly true where part or all of the costs are of a variable nature and vary directly with some unit of activity which fluctuates from month to month.

The limitations in the type of comparisons described above can be eliminated through the use of flexible budgetary control in which budgeting gives consideration to the behaviour characteristics of each item of cost so that comparisons of current cost would be made to a budgeted amount adjusted to reflect current levels of activity and other current conditions. It will be our purpose to describe the flexible budgetary control technique in more detail and to illustrate its application to a typical medium or large-sized farm.

Preparing a Flexible Budget; Definition of Variance Types

A flexible budget is a carefully pre-determined plan of operation translated into dollars and constructed in such a manner that it can be adjusted to reflect what costs should be at any time during the budget period or for any set of conditions or levels of activity. The "flexible" feature of budgetary control comes from the practice of classifying all costs according to the manner in which they behave with respect to volume, i.e., fixed, variable, mixed, or irregular. Fixed costs (sometimes called period costs because they are fixed or non-varying for each period) are costs which remain constant over the budget period. Variable costs are those which vary in direct proportion with the activity of the cost center (the cost center represents a group of related operations selected to conform to the responsibilities of the various supervisors in the organization and with regard to phases of work which are of like nature.) Mixed costs are those that include a fixed element and a variable element. Irregular costs vary in some irregular manner, such as seasonally.

The overall plan of operation for the year is determined and the activity of the center in relation to this plan is determined and expressed in terms of some unit of measurement to which cost behaviour can be related, e.g., dozens of eggs or

pounds of milk produced. The forecast activities for each cost center are used to establish the standard unit cost for the respective cost centers in terms of their own units of activity. The standard unit costs remain the same during the budget period (usually a year) and the various cost comparisons are related to and reconciled to them, as will be seen in the example to be developed later. Variances from standard cost are of certain specific kinds and it is useful to be able to recognize them. They are identified in the following paragraphs.

Volume effect: It is unlikely that the activities experienced in any month will correspond exactly with the normal activity. Since some of the costs are fixed, cost center total costs expressed in unit form will be lower than the standard cost at levels of activities greater than normal because of the greater number of units over which to spread the fixed costs. Correspondingly, at levels of activity less than normal, the actual unit cost of the cost center will be higher than the standard unit cost because of the lesser number of units over which to spread the fixed cost. This difference in cost is referred to as a "volume effect" and is considered to be favorable in activities over normal and unfavorable at activities less than normal.

Mixture effect: It is occasionally desirable to budget some cost items which are essentially variable in nature but which vary with respect to some unit of activity other than that chosen as the unit of activity for the cost center. At normal budget activity, then, the number of units of each are in some ratio with respect to each other. It is unlikely, however, that the number of those units of activity actually experienced in any month will be in the same ratio or proportion as in the normal budget. Fluctuations in cost caused by variations from normal in the ratio between two or more units of activity are referred to as "mixture effect" variances. Mixture effect variances arise from various types of work actually carried out differing in proportion to the total or to each other from what was planned when the budget was prepared.

Operating cost variance: Actual cost charged to each account must be compared to a budget allowance which has been adjusted to reflect the actual activity of the period, in order to know whether the costs are in line for the work which was actually carried out. The current budget allowance is determined by reference to the budget where the costs have been classified as fixed, variable, mixed, or irregular. In any month, then, the current budget allowance for fixed items will be the same as for any other months. For variable items, it is calculated by multiplying the standard unit cost by the actual number of units in the activity for the period. The allowance for items classified as mixed is determined by adding the fixed portion to the variable portion adjusted to the activity of the period. The allowance for items classified as irregular is calculated as de-

tailed in the budget for the period. The difference between the actual cost and the current budget allowance is known as operating cost variance. Where the actual cost is greater than the budget allowance, the variance is said to be unfavorable and is usually shown on the statement in red or in brackets. Where the actual cost is less than the budget allowance, the variance is said to be favorable and is shown in black.

Price and usage variances: The operating cost variance is often further divided for certain key items of supplies or labor into the portions that have been caused by variation from standard in price or rate and quantities used. These are referred to as price variances and usage variances, respectively. They serve to isolate further the controllable from the non-controllable type of expense.

Example of Flexible Budgetary Control in a Farming Operation

Let us now demonstrate how these cost concepts can be put into actual practice by developing an example based on the flexible budgetary control system in operation at the Searle Farms in East Selkirk, Manitoba. This farm is operated as a division of the Searle Grain Co. Ltd. of Winnipeg, Manitoba, and is under the progressive guidance of Mr. Stewart A. Searle, Jr. The major enterprises of this farm are a shorthorn cattle herd, poultry, and a dairy herd. There are subsidiary operations which support the major enterprises and these have been grouped for control and costing purposes into cost centers. They include pasture expenses, the growing of grain for feed purposes, the growing of hay, costs related to silage, costs related to the operation of the numerous tractors and other major pieces of farm machinery, and farm administrative and other overhead costs.

The costs related to each of these subsidiary cost centers are collected and controlled in total, each with its own budget and cost statement. Subsidiary cost center costs (with the exception of farm overhead) are then distributed to the major enterprises, using suitable bases such as tons, bales, or hours used and charged to major enterprise cost centers as a variable cost. Farm overhead is *not* distributed to any cost center or enterprise but is taken directly to the profit and loss statement where it is shown as a deduction from the total marginal revenue realized from the major enterprises. We shall use the poultry enterprise as our example, this being straightforward but of sufficient complexity to illustrate the basic flexible budgetary control principles and techniques. The figures used are, of course, fictitious.

The following activities of the poultry cost center will be assumed:

1. Unit of activity of cost center will be "dozen eggs produced" and

is forecast to be 5,000 dozen per month, calculated as follows:

Calculation of Normal Activity

Total cages	=	3048
Less unfilled cages	=	235
Normal number of laying hens	=	2813

Laying standard = 70% = 70% × 365 days/yr. = 256 eggs/bird/yr.

Thus total production = 256 eggs/bird x 2813 birds
= 720,000 eggs/year
= 60,000 doz. eggs/year
= 5,000 doz. eggs/mo.

2. Pounds laying feed per hen equals 9.00 per month.
3. Pounds laying feed per dozen eggs equals 5.14

BUDGET DETAIL SHEET

ACCOUNT NAME Laying Feed		ACCOUNT NO. 630.10
PREPARED BY L. A. F.	DATE 11-15-57	DEPARTMENT Searle Farms
ACCEPTED BY J. F.	DATE 11-30-57	COST CENTRE Poultry
APPROVED BY S. A. S., Jr.	DATE 12-15-57	ACCT CLASS ☐ F ☒ V ☐ I

THIS ACCOUNT IS CHARGED WITH:

The cost of all feed consumed by laying hens.

STANDARD DATA:

PRICE: $3.75 per cwt.

USAGE: 9 lbs. feed per bird per month @ 70% production

or, 5.14 lbs. feed/doz. eggs

Laying Feed Costs = 5.14 x $3.75 x $\frac{1}{100}$

= $ .193 per dozen eggs

NORMAL BUDGET ALLOWANCE:

Normal Activity = 5000 dozen eggs per month

Normal Budget Allowance = 5000 doz. x $ .193/doz.
= $965

CURRENT BUDGET ALLOWANCE: Will be Calculated as:

$ .193 x No. doz. eggs produced during month

EXHIBIT 1

A separate Budget Detail Sheet (Exhibit 1) is prepared for each account of each cost center, on which is shown all pertinent standard data, forecasts, and other information which relates to the account. It is usually good practice to prepare these sheets as completely as possible, so that the budget represents a "bible" of all known significant data with respect to the cost of the operation. The exhibit is an example of a variable account (laying feed) in the poultry cost center. Key identifying data relative to the account and the preparation of the budget detail sheet are shown at the top of the page. Directly beneath this has been provided a space for describing the nature of the costs which should be charged to the account. This description is usually taken directly from the chart of accounts. The remainder of the budget detail sheet is used to record basic standard data relative to the costs to be charged to the account, the calculation of the normal budget allowance, and a designation as to how the current budget allowance is to be calculated each month for use on the monthly statements and against which the actual costs will be compared. Where price and

SEARLE GRAIN COMPANY, LIMITED

BUDGET SUMMARY SHEET

Dep't. Searle Farms Cost Center Poultry

Date Prepared: 15 Nov. 1957	Key Man: Joe Fawcett
Std. Unit of Activity: Dozen Eggs Produced	Normal Activity: 5000

ACCOUNT Number	Name	Acct. Class	Fixed	Variable	Total	Unit Cost
630.01	Labor	M	$165	$150	$315	$.063
630.10	Laying Feed	V		965	965	.193
630.16	Repairs	F	100		100	.020
630.22	Chicks	F	80		80	.016
630.23	Chick Feed	I		220	220	.044
630.24	Shipping Charges	I		75	75	.015
630.45	Miscellaneous	F	100		100	.020
630.99	Depreciation	F	240		240	.048
	TOTAL		$ 685	$1410	$ 2095	$ .419

EXHIBIT 2

usage are factors which must be given consideration, as in this example, this data should be kept separate in the standard data to facilitate the calculation of the price and usage variances to be shown on the statement.

After a budget detail sheet has been prepared for each account in the cost center, all are summarized on a Budget Summary Sheet (Exhibit 2). It will be noted that the laying feed budget detail sheet has been summarized on the second line. Since this account has been budgeted as a variable account, i.e., the costs vary directly in proportion to the activity of the cost center, a "V" has been entered in the "account class" column and the normal budgeted amount of $965 has been entered in the column headed "variable." It will be noted that accounts .16, .22, .45, and .99 are all fixed accounts and have been designated with an "F" in the account class column and the normal budgeted amount has been entered in the column headed "fixed."

Account .01 (labor) has been designated with an "M" to indicate that it is a mixed account, that is, it has a fixed portion which has been entered in the fixed column and a variable portion which has been entered in the variable column. The fixed portion represents the poultryman's monthly salary and the variable portion represents the time spent by his wife working in this enterprise and is charged at an hourly rate. Accounts .23 and .24 have been identified with an "I" to indicate that they are irregular. The normal budget allowances for these accounts have been entered in the variable column. The reason for this is that they are essentially variable in nature because they vary with some unit of activity, but the units of activity with which they vary, the "average chick population" and the "dozen eggs shipped," respectively, are not the same as the unit of activity of the cost center to which they apply. They are, therefore, classed as irregular. Mixture variances will occur wherever the actual ratios of chick population to dozen eggs produced and dozen eggs shipped to dozen eggs produced differ from the normal ratios included in the budget.

The standard unit cost for each account is calculated for reference as necessary and for use in the calculation of mixture variances or for special studies which might be made. The total unit cost represents the standard cost for the cost center and will be shown in the statement each month. It represents the point to which actual costs are compared and reconciled. In the engineer's vernacular, it is a "datum point" or "bench-mark." It should be noted that the summary of budgeted costs on the budget summary sheet provides many of the essentials required to carry out profit analysis studies, to prepare profit-volume charts, to study the economics of long-range plans, and for determining the cost effect of following possible alternative plans of operation on a short-term consideration.

Cost and Variance Statements

In a flexible budgetary control system, a statement is produced each month for each cost center as a part of normal accounting routines. These statements are designed to show the actual costs experienced during the month and for the year to date and to compare them to the allowances determined from the budget. The comparisons result in differences or "variances". It is, therefore, appropriate that these statements be referred to as cost and variance statements. In addition to a cost and variance statement which is produced for each cost center, a profit and loss statement is prepared. In this discussion we shall be concerned only with a sample Cost and Variance Statement (Exhibit 3) for the poultry cost

SEARLE GRAIN COMPANY, LIMITED

Month - October 1957	COST & VARIANCE STATEMENT	For 10 Months to Date
Dep't. - Searle Farms	Cost Center - Poultry	Key Man - Joe Fawcett

	ACTIVITIES - Dozen Eggs Produced	
5000	Normal Activity	50,000
5115	Actual Activity	47,860
102.3%	Activity Ratio - % Actual to Normal	95.7%
	COSTS - $ per Dozen Eggs Produced	
$ .419	Standard Cost	$.419
.452	Actual Cost	.396
(.033)	Total Variance	.023
	ANALYSIS of TOTAL VARIANCE	
.031	Volume Effect	(.037)
(.028)	Mixture Effect	(.009)
(.036)	Operating Costs	.069

Current Allowance	Actual	Variance	ANALYSIS of OPERATING COST VARIANCE	Actual	Variance
			.630.		
$318	$ 300	$ 18	.01 Labor	$ 1550	$ 686
987	1050	(63)	.10 Laying Feed	9449	(212)
		82	Price Variance		134
		(145)	Usage Variance		(346)
100	70	30	.16 Repairs	800	1400
80	135	(55)	.22 Chicks	960	398
225	216	9	.23 Chick Feed	2047	59
77	84	(7)	.24 Shipping Costs	891	(173)
100	215	(115)	.45 Sundry	855	1145
240	240	-	.99 Depreciation	2400	-
$2127	$2310	$ (183)	TOTAL	$18,952	$3303
.416	.452	(.036)	$ / Doz. Eggs Produced	.396	.069

STATISTICS	Budget	Actual Month	Actual To Date
Average Number of Hens	2813	3325	29.673
% Production	70%	65%	62%
Pounds Feed per Hen	9.00#	9.07#	8.61#
Price of Laying Feed	3.75/cwt	$3.48/cwt	$3.70/cwt
Pounds Feed per Dozen Eggs	5.14#	5.90#	5.34#

EXHIBIT 3

center. Discussion of the statements will be confined primarily to the interpretation of the figures and how they can be used by management. The mechanics of preparing the statements and calculating the variances will not be discussed. These are usually described in detail in a set of standard practice instructions supplied to the cost clerk or accountant for his use.

It will be noted from the headings on the statement that costs for the month are shown on the left side of the statement and for the year to date on the right. In addition to the usual identifying data, it is desirable to show in the space headed, "key man", the name of the person who is primarily responsible for the successful operation of the enterprise or "area of influence" represented by the cost center. He is, to all intents and purposes, the manager of this enterprise and to show his name on the statement helps to press home this point and to promote the feeling that he is a part of the management team. The remainder of the statement is divided into five sections headed:

1. Activities
2. Costs
3. Analysis of total variance
4. Analysis of operating cost variance
5. Statistics

Under "activities", it can be seen that the actual activity is 2.3 per cent greater than the normal activity. From this we would expect to see a lower unit cost than standard because of the volume effect. Looking at the next section, headed "costs", however, we see that our actual cost this month was greater instead of lower than the standard cost by $.033 per dozen eggs produced. The explanation for this becomes evident when we observe the analysis of the total variance in the following section. You see immediately that the favorable activity ratio did have a favorable effect on cost to the extent of $.031 per dozen eggs produced. This has been offset, however, by rather substantial unfavorable mixture and operating cost variances.

On the year-to-date side of the picture, the opposite situation exists. While the activity ratio is only 95.7 per cent for the ten-month period, the total variance is favorable. Again, the answer to this apparent anomaly is shown in the "analysis of variances" section where the volume effect variance is unfavorable, as we would expect it to be. The favorable appearance of the total variance is seen to have been caused by the large cumulative favorable operating cost variance.

Referring now, again, to the variance for the month in the "analysis of variance section" of the statement, we see that the mixture effect variance has been rather large. The cause for part of this extra cost can be seen by noting in the statistics section of the statement that the pounds of feed per hen has been

9.07 instead of 9.00. Although it has not been shown on the statement, the remainder of this variance has resulted from a larger-than-normal proportion of eggs shipped to the total eggs produced. This would be evident to the people who use these statements from the information contained in their budgets, as well as from supplementary statistical data.

An unfavorable mixture effect variance in any month does not necessarily represent a bad condition. If a trend is indicated by the to-date costs (on the right hand side of the statement), then a further study should be made, if necessary, to determine why the program of work for the year is getting so far out of line from what was forecast in the budget.

The other large variance shown in the "analysis of total variance" section is the operating cost variance. This is the variance which is of the most significance to the key man of the cost center, since he has more control over it than over the others. Because of its importance, therefore, it is analyzed in considerable detail in the succeeding section of the statement headed "analysis of operating costs variance."

The costs and the variances are arranged in the order in which the budget has been prepared. The figures in the "current allowance" column are obtained from the detail sheets in the budget for each item of expense. The actual cost is shown against the budgeted cost and the variance is calculated as the budget dollars less the actual dollars. All figures are shown to the nearest dollar, cents being of little or no significance on a report of this type. Unfavorable variances, i.e., the actual costs are greater than the budget allowance, are usually shown in red. For reproduction purposes these have been shown in parentheses in this example.

A glance at the variance column in this section of the statement will give an indication immediately of those items which are out of line and which should be analyzed further for determination of the cause. Thus we have management according to the principle of "management by exception". In other words, only the exceptions should require the close attention of management or of the supervisor, since other items are close to what was anticipated when the budget was prepared and should, therefore, create no alarm. Both favorable and unfavorable variances should come under close scrutiny.

The cost of some items are affected by two influences—price and usage. Therefore, where dollar amounts of such items are significant, the variance should be analyzed in a routine manner on the statement, so that the extent to which price and usage have affected the total variance for the item can be determined. An example of this has been illustrated on our statement in the account for laying feed. Though the net variance for laying feed is only $63, in each case the

effect of price and usage has been greater than this. While the feed has apparently been purchased at a reduced price, the amount used per dozen eggs has increased substantially. Of concern to the manager is whether or not the reduced price of feed has been realized by a reduction in its quality. While there may be no correlation between the quality of the feed and the consumption of feed by the hens, the fact that the production rate of the hens is 5 per cent below normal this month (as seen in the statistical section) may be the result of such reduced feed quality or change in diet.

Better Management Choices

These "cause-and-effect" relationships can and should be observed closely on a day-to-day basis through the use of statistical data reported. The significance of the statistics, however, may not fully be appreciated until they have been translated periodically into dollars as well. Of even more importance is the fact that managers can, through the use of the information and standard data contained in the budget and by following the type of cost analyses described here, carry out more effective planning, in advance of making decisions, which will affect the ultimate profitability of the enterprise. In other words, the dollar effect of using alternative combinations of cost elements or of following alternative plans of operation can be measured ahead of time in many instances and, thus, should reduce the element of chance and guess-work in the management of the enterprise.

How We Account for Taxicab Revenue

by NAOMI B. THOMAS

THE TAXICAB INDUSTRY is a transportation business for the carrying of people only. Under state law, a taxicab company is classified as a public utility. It is regulated, usually by the state public service commission or other body which has authority to grant permits to individuals and companies for the operation of cabs. All taxicab companies in any one city operate at a selling price or fare rate set by this body and under orders issued by it. The regulatory body also prescribes the kind and quality of service to be rendered.

Unlike other types of utilities within most cities, taxicabs are generally found to be competitive with other operators. This is the situation in Baltimore, so we must operate efficiently and economically to retain a profitable position within the industry. The number of permits granted by the commission is limited to the number of cabs believed to be needed to serve the public satisfactorily and, at the same time, produce a reasonable profit for the owners. Permits once issued are not transferrable by the holder. However, where a cab owner wishes to sell his business (on application to the commission), permission is usually granted for cancellation of the seller's permits and issuance of new permits to the purchaser for operation of the same number of cabs.

Cab drivers or chauffeurs are trained professionally and must meet required tests in the handling of their cars and have a thorough knowledge of all traffic laws and regulations. In addition to the employer's requirements, each driver is investigated by the Baltimore City Police Department Taxicab Bureau and must secure a permit indicating that he has been approved by it for the operation of a taxicab. This permit can be revoked by the police department for any violation of the bureau's regulations.

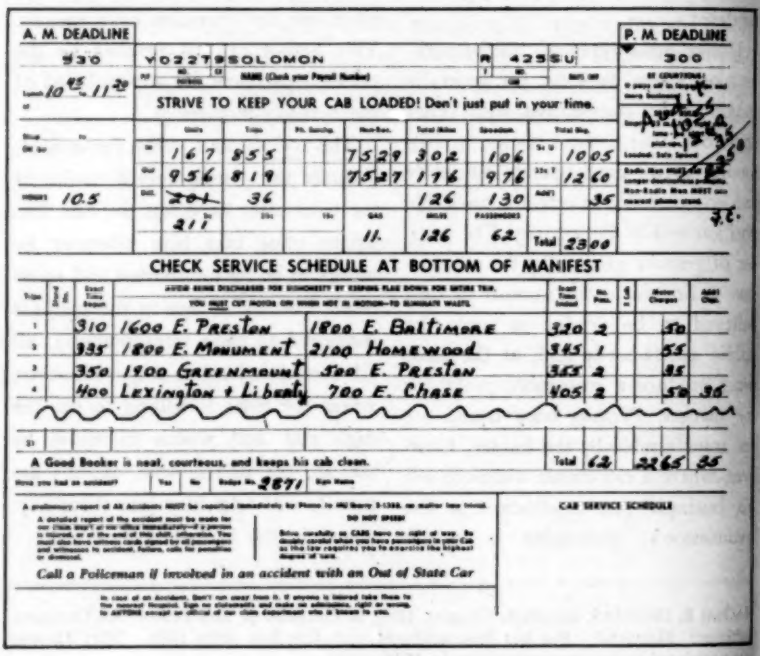
The taxicab, as a public conveyance, becomes the private rented carrier of the rider after he enters the cab. The driver must take him wherever he wishes to go by the shortest and safest route. Practically, due to the cost (as compared to mass transporation), all cab service is local in scope. However, where the rider is willing to pay the high cost and wishes to travel by taxicab, the driver, with owner's approval, will take him just about anywhere in the United States.

NAOMI B. THOMAS, Baltimore Chapter, 1949, is Treasurer of The Yellow Cab Company, Baltimore, Maryland. She has been affiliated with this firm since 1936. Miss Thomas was appointed to her present position in 1946.

The Rates and The Meter

Cab fare rates vary from city to city. Baltimore city rates are among the lowest in the country. The metered fare, which is a measure of miles travelled and timed use of the cab, is most generally used. This is considered the fairest charge to the rider. Some cities do allow operation of cabs on a zone rate basis. The city is divided geographically, with a fare for each zone, cumulative for zones through which the cab must travel to reach the passenger's destination. This, as can be realized, causes a wide fluctuation in fare charges to the rider, being governed by direction of destination rather than miles travelled.

Metered fare is automatically determined by so called taximeter. This mechanism is installed in or on the front panel of the car and is connected to the transmission by a cable, the same as a speedometer. When set in motion by the driver after the passenger enters the cab, by means of the flag or lever being pulled down, the taximeter automatically calculates and registers the cab fare for each trip in dollars and cents on dials visible to passenger at all times. In addition to recording mileage, this mechanism contains an electric clock which also


A. M. DEADLINE 930 — P. M. DEADLINE 300

Y0227 SOLOMON — R 425 SU

STRIVE TO KEEP YOUR CAB LOADED! Don't just put in your time.

	Units	Trips	Wt. Surchg.	Non-Rev.	Total Miles	Speedom.	Total Dup.	
In	167	855		7529	302	106	In U	1005
Out	956	819		7527	176	976	Un T	1260
HOURS 10.5	DAY 201	36			126	130	ADD'L	35
	In 211	Un	Un	GAS	MILES 126	PASSENGERS 62	Total	2300

CHECK SERVICE SCHEDULE AT BOTTOM OF MANIFEST

Trip	Start Time Taken	From	To	Start Time Finished	No. Pass.	$	Meter Charges	Add'l Chg.
1	310	1600 E. Preston	1800 E. Baltimore	320	2		50	
2	335	1800 E. Monument	2100 Homewood	345	1		55	
3	350	1900 Greenmount	500 E. Preston	365	2		95	
4	400	Lexington & Liberty	700 E. Chase	405	2		50	35
21								
A Good Booker is neat, courteous, and keeps his cab clean.				Total	62		2265	35

Were you had an accident? Yes No Badge No. 2671 Cab No.

CAB SERVICE SCHEDULE

DO NOT SPEED

Call a Policeman if involved in an accident with an Out of State Car

EXHIBIT 1

registers the fare for time use of the cab. The clock unit is assembled with the mileage recorder to pick up the time element when cab is not in motion. In Baltimore City the fare rate is 35¢ within one mile (minimum charge) and 5¢ for each additional ⅓ mile and/or 1½ minutes waiting time or fraction thereof.

The meters are inspected and checked periodically for accuracy by tests run under the supervision of a representative of the Public Service Commission, whereupon they are sealed by him with a lead seal to prevent tampering. To the rider, the taxicab meter is the automatic measurement of fare cost. To the company, it is a measurement of income for the shift operation of each cab. All cabs are operated on both day and night shifts. The meter registers cumulatively on dials located in the back the number of units of fares or individual trips within one mile, and the number of units of additional ⅓ miles or waiting time.

From Check-Out to Check-In

The driver's manifest or trip sheet (Exhibit 1) is our accounting control for receipt of cab revenue. Manifests are mechanically prepared in advance by our tabulating department for each cab, both day and night shifts, for each day of the week and show cab number, radio or non-radio equipped, and number and name of regularly assigned driver. Relief and part-time drivers' names are filled in by dispatcher. At the same time Dispatcher-Cashier's Report sheets (Exhibit 2)

DISPATCHER—CASHIER'S REPORT

A ODD DAY — TUE — 5 06 58 (NO. DAY YEAR DATE)

SHIFT — DAY

TIME OUT	R S D.	PAYROLL NO.	CK	NAME	CAB T	CAB NO.	SURCHARGES	TOTAL BOOKINGS
2 55	Y	02279		SOLOMON	R	425		23 00
3 40	Y	00026		HENDELBERG	R	427	1 20	22 25
3 05	Y	04549		WAGNER	R	429	2 25	23 65
3 55	Y	04812		SYDNOR	R	431		19 25
					R	433		
	Y	03475		COOK	R	435		
						TOTALS	37 80	759 80

TOTAL CABS 42 MEN 45

EXHIBIT 2

are run numerically by cab number (broken down by odd and even numbers for time scheduling of cabs in and out at shift changing), showing the same information as the manifests, with columns provided for departure of cab, sur-charges, and total revenue. The manifests, together with dispatching sheets, are sent to cab dispatching office for issuance to the driver when he is assigned his cab. At that time the dispatcher clock-stamps "out" time on the manifest and manually enters the time on dispatching sheets for each cab and driver as they are checked out. These sheets are held in dispatcher operations office until near the time that cabs are due to return, so that all cabs can be accounted for during the time they are out on the street. The dispatcher-cashier report sheets go to the cashier's department at check-in time or change of shift.

The driver keeps a daily operating record on his manifest, including an itemized list of each trip or job. The dispatching office has already recorded in indelible ink on this manifest the meter unit readings on the cab before it goes on the street. The driver, for his own protection, will check these unit readings with the meter before he leaves the garage. When his work shift is over, he will record the meter readings as of that time in the space provided on the manifest. By deducting the "out" readings from the "in" readings on his return, he calculates what his metered receipts for the shift amount to.

In addition to fare charge registered by meter calculator, additional charges to passenger are: 15¢ for cab ordered by phone, 10¢ each for hand luggage over two pieces, and 40¢ each for large pieces of luggage. Voluntary group riding of individuals for joint use of cab is permitted in Baltimore from railroad stations and places of public assembly. For such service the charge registered on the meter is the fare to be paid by each individual when leaving the cab at his destination but, in no event, is the charge to be more than had he used the car individually and by the shortest route to his destination. The group riding is permitted to serve the public more quickly in circumstances under which there are an insufficient number of cabs to accommodate the demand at a given time.

All revenue not recorded by the meter register is hand-entered by the driver on his manifest in an additional column opposite his listing of the meter trips. This detailed trip record is also a requirement of the police department and must show origination and time, together with destination and time, for each job. The manifest also shows number of passengers carried for each trip, as well as time out for lunch or any other time the cab is in service while on the street. For accounting purposes, the manifest will show by clock stamp the time the cab returned. In addition to total miles run as shown by taxi-

meter, speedometer readings are taken as verification of meter miles. When the driver upon his return presents his manifest to the dispatching office, these readings are immediately recorded as "out" readings of this cab on following driver's manifest. Registered meter units continue consecutively and can be changed or corrected only by company's taximeter superintendent.

Meter Accuracy and Meter Failure

Accuracy of meter registration of fare is important to the rider, the driver and the cab owner—to the passenger because of the cost to him, to the driver for his commission and to the company for its income. There are also other parties interested in accuracy of revenue, such as the regulatory commission for fair rates and the Internal Revenue Service and state comptroller for taxes.

While income figures are extended to a per mile basis in the financial statement and have a trend value, they are not prima-facile evidence of the monthly results of operations. Travel in slow speed limit zones and congested traffic continuously change the values in per mile figures. Other factors can influence revenue, as illustrated by the following experience of which we were unaware for some time. It occurred through the continued use of old-model meters which where in good operating condition, so we thought, although they had been repaired many times, with replacement of parts as needed. They registered correctly on test equipment. At that time, we were not taking daily recordings of our speedometer units. Accidently, through detail records on some test cabs, the fact was brought to light that on the street these meters were continually slow in registering. Due to their age, they were not geared to present-day car quick get-away and traffic conditions and, probably partly as a result of replacement of old parts with new, high-precision accuracy was lost when on the street. We then realized we were losing each day a substantial amount in nickels.

The accounting mechanism (taximeter) represents a large investment of capital and its maintenance requires specially trained mechanics. It is our basic source of accounting data for revenue and functions in a capacity similar to a cash register in a retail store. Spare units are carried in our meter department. When meter failure occurs while in service, the driver will estimate the amount of the fare, which must also be acceptable to the rider. The cab must then immediately return to the company's garage where meter is replaced. The driver then secures a second manifest with the readings of the replacement meter entered by superintendent, before going back on the street. The readings on the broken meter at time of removal are reported by the meter

superintendent to the dispatching office for verification with driver's first manifest, which is filed at that time.

While the meter gives reasonable control of revenues collected by the driver, it is by no means conclusive. The fare recorder is controlled solely by the driver by use of the flag or lever arm to start the meter registering when cab is in use. This means, to some extent, that all passenger fares may not be registered. While a passenger would not be required to pay a fare not recorded on the meter, unless convinced it is out of order, some passengers pay little attention and will make no complaint if the driver charges what they think is a reasonable, or even lower than usual, fare for the ride. Receipt of revenue from extra charges for cab service not registered cumulatively on the meter is actually dependent to a great extent upon employee honesty in recording and turning in to the company his full receipts for the work shift. With the heavy traffic of city streets and the peak demands for cabs at certain hours, there are times when one passenger leaves a cab and another will immediately claim the cab. The driver finds it difficult to list his trips as they occur, so he must fill in this information from memory at some later time.

Review of Manifest; Drivers' Pay

As drivers return to garage at the end of their work shift, their manifests and monies are checked in "as is" to the cashier and the amount of revenue from each driver is entered on the dispatcher-cashier's report sheets. After shift closing time, these sheets are reviewed to see that all cabs are in and drivers' manifests accounted for. The sheets are then totaled, obtaining number of cabs operated, number of drivers who worked and total manifest revenue. Cashier's receipts are proved to revenue, with a daily cash report to the accounting office. All manifests are audited the following day for accuracy of metered revenue and spot-checked for additional charges not registered on meter. Any detected errors are adjusted by means of a Meter-Manifest Reconciliation slip (Exhibit 3) showing a charge or refund to driver. These adjustments are made up in duplicate, with notation

METER-MANIFEST RECONCILIATION

Cab 425 Date May 6, 1958 Shift A.M.

P-R. No. 7227-2 Name Solomon

CORRECT METER READING

	UNITS	TRIPS	U.	1955
IN	169	855	T.	12.60
OUT	956	819	EX.	.35
DIFF.	311	36		
Pk. Ch.	Amt.	TOTAL		23.50

DRIVER'S INCORRECT REPORT

	UNITS	TRIPS	U.	10.05
IN	169		T.	12.60
OUT	956		EX.	.35
DIFF.	201			
Pk. Ch.	Amt.	TOTAL		23.00

Over ____ Short .50 Initial F.E.

Remarks: ERROR IN UNITS

EXHIBIT 3

in manifest, and sent to the payroll department. The charge or refund is made to driver through his pay check, with his commission adjusted accordingly. One copy is attached to driver's pay check and the other goes to the accounting department for revenue adjustment.

From cashier's department, the manifests, with dispatcher-cashier's report sheets, go to the tabulating department for card punching of detail information for payroll, driver supervision, operating and statistical purposes. Drivers are paid a straight commission at two rates, based on their weekly receipts. The lower rate is based on metered and extra revenue and a higher rate on the 15¢ sur-charge for cab phone orders. The higher rate on phone orders was established as an incentive to drivers to take phone business, due to possible loss of a pick-up job while going to a call job. This sur-charge to rider was also made to help offset to the company the higher cost of doing phone order business. These are radio and telephone costs and higher per-mile cost due to "dead" mileage to the job. Sur-charges and cab fare revenue as a result of phone orders can be relied on to be recorded by driver, as this portion of revenue is checked against accepted phone orders.

The company depends for its income upon the effort of the individual driver, in selling cab service to the public. A detailed report is made to the driver supervisors by the tabulating department, giving full information on each driver's manifest of the previous day. We supervise driver performance by means of break-even analyses computed on the basis of driver's average daily manifest.

Encouraging Driver Productivity

It would be an ideal operation of the business to set a required amount of revenue for each driver on each shift sufficient to cover all costs, with a reasonable profit to the company. The problem is that cab demand fluctuates with each day of the week. Thursday, Friday, Saturday, and Monday are the best volume days. Driver revenue, therefore, varies each day of the week and any one day is affected by the weather, holidays, sports events, conventions, vacations, etc. One could contemplate calculating mathematically what a driver's receipts should be and adjust this figure for daily volume variances, but it becomes quite a different problem when you must take into account the effect of individual driver performance. In industry where, under constant supervision, the worker is of necessity restricted in production to the speed of his machine, measurement can be made fairly accurately as to what his productivity will be. However, once on the street, a cab driver is his own boss and his production for the day depends to a great extent upon his own individual work effort for that day, influenced by his general

health, mood, attitude and philosophical outlook.

We know what a driver should earn each day to warrant the investment we have made in him by supplying him with a cab and all other operating facilities. However, we cannot factually know all the reasons why one driver will have a profitable receipts, while another will show a loss the same day. As a driver works on a commission basis, this should be sufficient incentive for him to produce to his maximum. It does guide the majority of drivers, but there always seems to be about one-third of the man-power constantly just about at or below the break-even point. With the independence from supervision which a driver has, plus a good average wage scale in earnings to himself, the turnover in personnel is still high.

With both the number of cabs we can operate and the fare rate fixed by the Public Service Commission, we must always utilize our fleet to the maximum possible, average cabs in operation at all times being 98 per cent of our fleet of 300 cabs. The fixed costs necessary for full fleet operation make it imperative that each cab produce toward these costs, even though we do not consider variable costs are incurred when cab is not in operation. Every shift not operated at 98 per cent of maximum increases the break-even revenue required of the operating cabs. Established rates plus increased cost result in decreased profits.

Hence every effort is made to keep cabs busy. The taxicab meters at our company are wired to a signal light above the dome light on the cab. When cab is empty, flag on meter being up, the signal light comes on indicating to any person looking for a cab that it is empty and available. When the cab has a passenger and the meter register flag is pulled down, this signal light automatically goes off.

The signal light can also be turned on by driver from a floor switch to blink alternately for help or aid when he is in trouble and will be answered by the police or another cab driver when observed. This has in a number of cases assisted our drivers during hold-ups, and conserved our revenue.

Inspectors and safety patrol cars are on the street at all times and make daily reports of drivers not operating in accordance with regulations, particularly with regard to a cab carrying passengers with the meter not in operation. This is easily observed by signal light and position of the meter flag.

We use our revenue statistics for control through comparison with individual driver results. Supervisors continually review driver's daily earning records for the up-grading of driver effort or the elimination of unsatisfactory drivers. Every effort possible is made with the individual driver by discussion with him of his problem, to make each a profitable salesman for the company.

Aiding Church Administration By Fund Accounting and Budgeting

by LeROY A. HEWITT

A CHURCH NEEDS FINANCIAL direction and management the same as any business. This need is not diminished by the fact that a church is a non-profit organization. In a sense, the need for good financial management and records is more important than for some businesses organized for profit. This is readily apparent when one considers the many members of the congregation directly interested in and affected by the expenditure of their contributions and the accountability therefor. The need for good accounting records is to:

1. Provide an effective tool for the financial management and operation of the church facilities and
2. Show proper accountability for receipts and disbursements.

The records and accounting reports must fulfill the above needs in order to budget and control expenditures, maintain the flow of donations into the church, and to report to the congregation on the financial trust placed in the hands of those responsible. Good accounting records also will provide better ministry because the pastor or minister can devote more time to the needs of the members, once he knows the accounting functions are being capably performed.

Transaction Classifications; Funds to Be Set Up

The objectives of church accounting, being rooted in accountability, differ from accounting for profit-motivated business. Income determination is not a factor. However, sound accounting principles are equally applicable to church and business affairs. The transactions of a church may be divided into three main classifications:

1. General operations
2. Endowments and restricted gifts
3. Expenditure for church property and facilities

The form in which the results of the transactions for an accounting period are reported is, of course, the responsibility of the administrators. Whatever the form used, any statments must be prepared to show that accountability has been maintained. The accounting data are, therefore, accumulated according to the three classifications as set forth above. The general operating classification will have asset, liability, revenue and expense accounts. The other classifications may have accounts for only some of these usual accounts. The difference between assets and liabilities may be termed "fund balance." This is similar to the retained earnings account in commercial accounting. The excess of revenues over disbursements increases the fund balance and the books are closed at the end of the year to reflect the change.

The revenues of a church are gifts from the congregation and the donors, by restricting the purpose of their gifts, require (in those instances) accounting to be performed to show that the monies were expended for the purpose intended. This can best be accomplished by establishing "funds."

LeROY A. HEWITT, Portland Chapter, 1955, is a Certified Public Accountant engaged in public accounting and is a member of faculty of the Portland State College and the General Extension Division of the University of Oregon.

A fund is a separate accounting and financial entity. It does not refer to cash balances only, but embraces assets, liabilities, fund balance, revenues, and expenditures. Each fund has a separate ledger and accounts from which financial statements may be prepared. The fund ledgers can be balanced separately. Every transaction must first be classified as to which fund is affected and then analyzed as to increases and decreases in specific asset, liability, revenue and expense accounts. The number of separate funds required depends upon the individual circumstances and nature of restrictions upon gifts received. The funds may include at least the following:

1. *General fund:* All gifts of a general nature (without restrictions, except for those imposed by the budget and the related expenditures for current operations) are recorded and accounted for in this fund.
2. *Building expansion fund:* All gifts specified to be used for building expansion are recorded as receipts. Income from interest, etc., on any portion of this money invested is income to the fund. Expenditures for the cost of expanded facilities are a proper charge against the fund. Payment of mortgage notes could also be a proper expenditure from the fund, provided the donors so intend.
3. *Restricted funds:* Donations for memorials and for other restricted purposes are recorded as receipts in this fund. The records should clearly state the intent and restrictions placed on the gift. Expenditures for the restricted purposes are properly charged against the fund.
4. *Endowed funds:* Endowments ordinarily restrict the use of the principal, providing that only the income from invested principal may be used for stated purposes. The accounting must be so conducted to show the faithful discharge of the fiduciary relationship with respect to both corpus and income.
5. *Fixed asset fund:* This fund shows the cost of church properties and facilities. However, the cost of any fixed asset acquired is a proper expenditure of some other fund, such as the building expansion fund or the general fund. The cost of the asset acquired is recorded as an asset of this fund for purpose of control over assets and for insurance valuation and has but limited meaning for financial management.

Approval and Operational Budgets

The anticipated cost of operations for an accounting year is assembled from the estimates made by the various boards and committees. The treasurer may coordinate and help to compile the estimates. Past reports of expenditures and previous budgets may be most useful. The pastor or minister should be consulted so that the budget will reflect his judgment as to the best division of expenditures to provide the total planned ministry program. Effective budgeting requires realistic appraisals of departmental needs and expenditure ceilings within the ability of the congregation to pay. The expenditure budget must, therefore, be tempered by the budget of revenues. The revenue budget should be the starting point to arrive at expenditure ceilings.

Expense accounts established for the budget should be by area of responsibility and function. For example, the board of trustees may have the responsibility for the operation and maintenance of church facilities. All expenses incident to the performance of their function should be grouped together. Salaries of custodians, custodian supplies, utilities, repairs and maintenance, etc., are all examples of the type of expense accounts included under

this area of responsibility. Other expense accounts should be classified so that they relate to specific areas of responsibilities.

The treasurer, after assembling all the data, prepares the budget in final form for the approval of the church council and submission to the congregation. The budget should include revenues by source as well as expenses. The prerogative of establishing the amount and nature of the expenditures rests with the congregation. This is accomplished by adoption of the budget. There is no right extended to the administrators to spend sums in excess of those approved, with the hope that deficits will be covered.

Financial management of the church requires accounting reports to reflect the status of actual expenses with the budget authorizations. To effectively accomplish this, an operating budget by months or quarters of a year must be prepared. The revenues and expenses are not received and incurred uniformly during the year. The operating budget takes this into consideration. Accurately prepared, this more detailed budget is an effective tool for financial administration and control over receipts and expenditures.

Financial Reporting and Exercise of Internal Control

Financial reports are composed of four principal statements.

1. Balance sheets by funds, showing assets, liabilities, and fund balances.

FIRST FAITH CHURCH
Anywhere, USA

Pro Forma Balance Sheet By Funds
December 31, 1958

	Total of all Funds	General Fund	Building Fund	Endowment and Restricted Fund	Fixed Asset Fund
Assets:					
Cash in bank	$XXX	$ XXX	$ XXX	$ XXX	
Savings accounts	XXX		XXX	XXX	
Pledges receivable	XXX	XXX	XXX		
Church properties	XXX				$XXX
Office furniture and equipment	XXX				XXX
Church equipment and furnishings	XXX				XXX
Parsonage	XXX				XXX
Total Assets	$XXX	$ XXX	$ XXX	$ XXX	$XXX
Liabilities:					
Federal income tax withheld	$XXX	$ XXX			
FICA tax payable	XXX	XXX			
Pastor's pension contribution payable	XXX	XXX			
Pledges not received	XXX	XXX	$ XXX		
Mortgage notes payable	XXX		XXX		
Total Liabilities	$XXX	$ XXX	$ XXX		
Fund Balances:					
Unrestricted	$XXX	$ XXX			
Restricted	XXX		XXX	XXX	
Invested in fixed assets	XXX				XXX
Total Fund Balances	XXX	XXX	XXX	XXX	$XXX
Total Liabilities and Fund Balances	$XXX	$ XXX	$ XXX	$ XXX	$XXX

EXHIBIT 1

2. Statement of changes in fund balances, showing the beginning balances, excess of revenues over expenses for the accounting period, any adjustments, and the ending balance. This statement is the connecting link between the statements of revenues and expenses and the balance sheet.
3. Statement of revenues, which sets forth the actual revenues, the budgeted revenues, and the differences between actual and budgeted amounts. The statement lists the revenues by source classification.
4. Statement of expenses, which is a comparative statement setting forth both budgeted and actual expenses and the variation from the budget.

The statements should be prepared by the treasurer as soon after the end of the month as possible. Copies should be distributed as required, usually to the president of the church council, the pastor, and the finance committee. As an example of the statements, the Balance Sheet by Funds and Statement of General Fund Revenues and Expenses are illustrated in Exhibits 1 and 2, respectively.

Principles of internal control should be observed in church accounting to assure that all money will be accounted for and to provide more accurate records. Cash receipts is probably the most vital area. Also, it is an activity where internal controls can be most effectively applied. A written procedure for the counting, de-

FIRST FAITH CHURCH
Anywhere, USA

Statement of General Fund Revenues and Expenses
Year ended December 31, 1958

	Budgeted	Actual	Over or (under) Budget
Revenues			
General church purposes	$ XXX	$ XXX	$ XXX
Special purpose offerings	XXX	XXX	XXX
Other collections	XXX	XXX	(XXX)
Other income	XXX	XXX	(XXX)
Total Revenues	XXX	XXX	XXX
Expenses			
Pastor's expenses	XXX	XXX	XXX
Office and administrative	XXX	XXX	(XXX)
Operation and maintenance	XXX	XXX	XXX
Evangelism	XXX	XXX	(XXX)
Youth and education	XXX	XXX	XXX
Finance	XXX	XXX	(XXX)
Music	XXX	XXX	(XXX)
Benevolences and missions	XXX	XXX	(XXX)
Total Expenses	XXX	XXX	XXX
Net Increase in Fund Balance (unrestricted)	$ XXX	$ XXX	($ XXX)

Note: Revenue and expense statements of other funds not illustrated.
This statement can be expanded to include more detailed sources of revenues and specific expense accounts.

EXHIBIT 2

positing, and recording of cash receipts is necessary to outline the responsibilities and policies of the tellers or finance committee. Such a procedural outline will make sure that the elements of internal control are followed, even when the members of the committee are rotated or replaced. The following procedures are applicable:

1. The tellers or finance committee should have exclusive and full control over the cash from receipt until final count and deposit. There should be at least two members present at all times when the cash is being handled. The treasurer should have no access to the cash at any time.
2. All cash received should be deposited promptly.
3. The pledge records should be under the control of and posted by an individual who is neither treasurer nor a member of the finance committee.

Expenditures can be controlled by approval of each separate expenditure voucher by individuals other than the treasurer. Of course, before a commitment is made, there must be a certification by the treasurer that such obligation is within the budget limitations. Checks may require the signature of someone other than the treasurer.

The Essentials of the Accounting System

The records required for an adequate accounting system for a church are primarily those for recording revenues and disbursements on a cash basis. Thus, the books of original entry may include a cash journal, check register and general journal. Entries from basic documents are first made in one of the books of original entry. Each transaction must be analyzed in terms of its effect upon the various funds and accounts within the fund, as established by the chart of accounts.

Another record is required to summarize and accumulate the transactions recorded in the books of original record. This is the general ledger. This ledger has an account under each fund for each asset, liability, revenue and expense classification, and an account for each fund balance. Transactions entered in the several journals are posted to the general ledger at the end of each month. Financial statements are prepared therefrom. Other records, such as pledges receivable ledger and employees' compensation records, are also required.

Provision should be made to record the pledges of the members of the congregation as "pledges receivable," with the matching credit to a contra account "pledges not received." The entry may be made on a monthly basis from a summary of the pledge cards, taking into consideration the manner of payment indicated by the pledgor, i.e. the amount payable weekly, monthly, quarterly, etc. If the work involved in posting the pledges on a monthly basis is too great, the task may be lessened by recording the pledges receivable on a quarterly basis.

The amounts received from the pledgors are credited as revenues in the cash receipts journal to appropriate funds. At the end of each month, the total so collected reduces the balances of pledges receivable and pledges not received accounts. This should be recorded as a journal entry in the general journal, debiting the pledges not received and crediting pledges receivable. The books and the financial report will then reflect the amount of unpaid pledges. The manner in which pledges are being paid and the amount unpaid is an important part of the financial planning and control. Portraying the unpaid pledges on the financial statements brings to the attention of the administra-

tors and the stewardship director the need for action to assure timely collections.

Accounting procedures may be developed using the account classifications already illustrated in the pro forma financial statements. Other funds and accounts may be added as the need demands. The individual expense accounts are to be established under each of the general areas of responsibilities enumerated, that is, for pastor's expenses, there may be accounts for salary, auto expenses allowance, pension, supplies, etc. Under operation and maintenance of church facilities, expense accounts could include heat, light, repairs, insurance, custodian salary, payroll taxes, etc.

Desirability of Audit of Church Books

Among the congregation there should be some experienced accountants who would willingly serve as auditors. The audit is an important adjunct to the internal control procedures. The auditor will present an independent view of how the fiduciary responsibility of the stewards of the financial affairs has been discharged. The audit is also advisable to provide review of the accounting procedures and the internal controls and to offer suggestions for improvement. The auditor should bear in mind that some personnel in church operations are subject to rotation. He should pay particular attention to any deviations from established procedure which may affect the internal controls and consistency in recording transactions.

The audit of the financial statements should disclose whether or not the donations received have been accounted for to reflect the wishes of the donors and that expenditures have been made in accordance with the desires of the congregation as expressed by the approved budget. The auditor must rely on the internal controls embodied in the accounting procedures to a considerable extent. The better the internal control and the accounting records, the less time will be required to complete the audit. Thus, the emphasis of the audit should be placed on the accountability for the monies received and disbursed.

Quarterly audits are ideal if it is possible to conduct them that frequently. The work involved can be spread, in this way, over a longer period of time, requiring less work and time for any of the shorter periods. It also enables the rotation of auditors and division of the work between several qualified individuals.

Budgetary Control for Six Stores Retailing Office Supplies

by J. A. NOEL

BEFORE OUR CONSIDERATION HERE of the mechanics of budget preparation and the methods of policing or controlling budgets, the fact that we are referring to small company operations should be stressed. While the approach to budgeting problems is somewhat related in every business, regardless of size, budget procedure in the smaller company is necessarily less scientific than in the larger concern. With the realization of the importance of the budget to the smaller company, we have attempted to adopt procedures and methods to the extent which we deam appropriate. Our businesses, that is, those which lend themselves to budget, do an annual gross of approximately four million dollars. These businesses consist of a parent engaged in school supply and equipment distribution, which does an annual volume of approximately one and three quarters million dollars, and six subsidiary companies engaged in retail office supplies, office equipment and printing, with the smallest of these stores doing an annual volume of approximately two hundred thousand and the largest approximately one million dollars.

I think the feature most responsible for the success of our budget operations, and management is very much in agreement that they are successful, is the detailed breakdown utilized. Each company is departmentalized into from six to nine departments, depending on the nature of the various items handled and the number of departments required to give the most satisfactory control without undue volume of accounting. This results in total dapartments budgeted numbering approximately fifty. The operating expense accounts of each company number from thirty to thirty-five. Over-all there are, thus, more than two hundred and twenty-five budgeted expense accounts. With this break-down, we feel that adequate control has been established. Another feature is our budget period. We formerly budgeted on an annual basis but have found that a six-months budget period establishes better control in that, with the study and projection necessary in budget preparation, we

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JOHN A. NOEL, Jackson Chapter, 1948, is Secretary and Assistant Treasurer of the Mississippi School Supply Company. Prior to this, he was with Dick D. Quin & Co., CPA's, and with General Electric Company. Mr. Noel is Past President of Jackson Chapter.

keep much more "enlightened" as to economic conditions, etc., as well as to our own operations.

Budgeting Down to Gross Profit

In the establishment of our budget, the first phase to receive attention is sales. This budget is eventually established by the general manager and the store or sales manager, as the case may be, after consultation with the accounting department. The sales department is furnished sales history of the past several periods, which is intended as an aid to show departmental trends, etc., but is considered primarily as a guide. Other factors to be considered in the area are the extent of development of sales personnel, new markets in the area, new processes in lines offered by us, as well as by competition, price changes, etc. With these things in mind, as well as with the information furnished by the accounting department several weeks in advance of the beginning of the period being budgeted, the sales manager, store manager and general manager hold meetings with the salesmen and department managers, and an original sales budget is established. This sales budget, broken down as to volume expected in each department and sales quota of each salesman, is furnished to the accounting department.

The next item for consideration is the cost of sales and resulting gross profit figure. In determining the departmental cost of sales percentage, we use as a guide actual cost of sales percentages for the past two periods. This basic figure is then adjusted for price changes, competition, new products, etc. The percentage finally fixed by the accounting department is usually very much in line with actual percentages of the past period. These same percentages are then used in preparing the monthly operating statement in all companies except the parent. (We formerly used this system in the parent but changed our method of salesmen's compensation to a gross profit participation formula requiring computation of profit on each invoice. As a by-product of this computation we get our actual cost of goods sold and gross profit each month and can use this in our operating statement.)

The accuracy of our gross profit percentage in the retail stores is checked periodically by taking physical inventories in various departments during the budget period. We feel that this is necessary, since we do not employ perpetual inventories. Once these cost of sales and gross profit percentages are established, they are applied to sales and we are ready to prepare the operating expense budget.

Expense Budgeting

For control of our expenses we use a forecast or fixed budget, as opposed to a flexible budget. Also, ours are not allowance budgets which limit expenditures in specific accounts. Our expenses fall in the normal fixed,

variable and semi-variable classifications. We have all three of these classifications in our selling or distribution accounts, but most of our administrative expense and warehouse expense accounts are fixed.

The expense item receiving most of our attention at budget time is the salaries account, which represents from fifty-five per cent to seventy-five per cent of our total expenses, depending on the period being budgeted. All salary schedules are reviewed at six months intervals and increases or anticipated increases during the following six months are included in the budget. Salesmen's commissions are forecast by applying a pre-determined percentage of the sales quota of each commission salesman. As for the remainder of the expense budget, the forecasting of fixed items presents no problem, but estimating expenses which fall in a variable and semi-variable classification is not so simple.

Our basic information for establishing variable and semi-variable expenses comes from past history. Adjustments are made after giving consideration to the following:

1. Variation in the sales budget from actual sales of previous periods.
2. Specific activities, such as a more intensified advertising program.
3. Suggestions offered by the store and sales manager.
4. Information furnished by administrative personnel.

With this background of information, the accounting department budgets the various expenses, giving careful consideration to each of them. At this point the totals are accumulated and budgeted operating profit computed. Each department is charged with its pro-rata share of operating expense but, due to the nature of the businesses, the method of distribution in the parent and in the subsidiaries is quite different. The details of our method of distribution in each of our businesses are not of such importance that they should be stressed at this point, but certain procedures concerning expense distribution in the parent company will be mentioned.

As noted above, the salaries account represents a very large percentage of our total operating expenses and a substantially correct distribution of salaries is essential. In excess of fifty per cent of our salaries account is comprised of salesmens' commissions, which fall in the direct distribution classification as a result of our method of compensating commission salesmen on a gross profit participation basis. Of the remaining salaries, a large percentage lend themselves to direct charge and the balance is distributed primarily on the basis of sales. The remainder of our operating expenses (selling or distribution, warehouse, and administrative), which represents from twenty-five to forty-five per cent of the total, are charged largely direct to departments, with those not being

subject to direct charge distributed on the basis of either arbitrary percentage or sales volume. Our expense distribution system is relatively simple but adequate, we feel, in that such a large percentage of the total is charged direct.

Special Attention to Inventories

Another statement which has recently been added to our budget schedules is one which might be called an inventory control statement. Like most expanding businesses of today, we are undercapitalized and are, consequently, very much interested in inventory turnover. Approximately eighteen months ago, we set up a central warehouse for our office supply department, the largest department in each of our stores, in an effort to reduce inventories in this department. Our businesses are members of trade associations devoting full time to the study and furnishing of information as to policies, trends, operating figures and financial information to their members. One item of interest to us, furnished by these associations, is departmental inventory turnovers. This, of course, is based on national averages. We study these very carefully and use them as a base for establishing suggested inventory values for each department in each of our stores.

A traditional criticism by management of the store managers and those responsible for controlling inventories has been that inventories are too high and the stock answer of the store manager or the other responsible person has been, "what should my inventory be?" Now that we have an established method of computation which management and operating people consider to be fair and equitable, many of our problems in this respect have been eliminated. A schedule showing suggested departmental inventories, actual departmental inventories and inventory overage or shortage is prepared each month and the policy of transfering merchandise to maintain better-balanced inventories in each store is being practiced.

Approval of the Budget; Control Under the Budget

The next step is to present the budget to the general manager and to the store manager, at which point it may develop that certain revisions may be requested by one or both. The accounting department weighs the request and, if it is determined that revision is desirable, it is given effect to. When these revisions have been made and final approval given by the general manager, the store manager and the accounting department, the budget is presented to the executive committee for final adoption. Fortunately, in very few instances, are revisions ordered by this committee.

As to enforcement and control, these will be much more readily accomplished if the budget is fair, that is, if it presents a challenge and at the same

time furnishes attainable goals. In a recent survey to determine whether or not our budgets were fair, we found that, over the past three-year period, the average variation in our sales budget was one and eight tenths per cent and I am happy to comment that sales were above those budgeted by this percentage. During the same period, average expense variation was two and seven tenths per cent. This, too, was represented by actual expenses over the budget, which could be attributed to some extent to increased variable and semi-variable expenses to attain these additional sales. We know that the degree of accuracy which has been achieved in budgeting helps to sell our management on budget operations and that it is of invaluable assistance to our sales and operating people.

Prior to the date of the beginning of the budget period, the president, the general manager, the store manager and the assistant store manager are furnished with a copy of the budget, which includes the sales budget, gross profit statement, the departmental operating statement, the budgeted expenses, departmental sales by months, the monthly break-even point by departments and the budgeted inventories by departments. At the beginning of each month, the same persons receive a copy of the budget for the month. As soon as possible after the end of the month, operating statements and statements comparing actual and budgeted operations are prepared. These consist of:

1. Sales Budget Statement (Exhibit 1), which includes budgeted sales, cost of sales, gross profit, expenses and net profits by departments, compared with actual operations.
2. Budgeted Operating Statement (Exhibit 2), which includes budgeted sales, cost of sales, gross profit, expenses and net profits by departments compared with actual operations.
3. Expense Budget Statement (Exhibit 3), showing budgeted and actual expenses for the month and for the period to date.

SALES BUDGET STATEMENT

	Month		Period to Date	
	Budgeted	Actual	Budgeted	Actual
Supplies	7,100.00	7,315.34	39,900.00	38,506.20
Library Books	1,425.00	1,555.45	5,377.00	5,777.91
G.C. and S.S.	1,500.00	1,411.74	4,552.50	3,933.80
Stock Machines	2,266.00	1,178.30	8,547.00	9,160.35
Repair Shop	273.00	391.89	2,664.00	2,939.14
Printing	8,736.00	9,254.39	44,044.00	47,960.56
Furniture	1,666.00	2,047.28	13,974.00	11,868.84
Totals	22,966.00	23,154.39	119,058.50	120,146.80

EXHIBIT 1

4. In the event of excessive expenses, an expense analysis statement, which sets forth in detail the various expenditures in accounts varying appreciably from the budget.

Bi-monthly, on the first or second Saturday after the end of the month, depending on the day on which the month ends, a meeting attended by all store managers, assistant managers and certain department heads, the general manager and members of the executive committee is called and the operating statements discussed in detail. This is done by projecting on a screen each statement of each company, in order that each manager may see the statements for the other stores as well as for his own. In this manner inter-company competition is stimulated. We believe the psychological effect of this type of presentation is of great value. Also, a schedule is prepared showing the percentage attainment of sales, expense control and net profit, and a nominal prize is given the store manager showing the best results in each of these phases. On alternate months, the operating statements are taken to the stores by the treasurer of the company or by some other member of the executive committee and discussed in detail with

BUDGETED OPERATING STATEMENT

	Sales	Cost of Sales	Gross Profit	Expenses	Net Profit
Budgeted					
Supplies	7,100.00	4,260.00	2,840.00	2,196.46	643.54
Library Books	1,425.00	997.50	427.50	513.51	(86.01)
G. C. and S. S.	1,500.00	975.00	525.00	413.89	111.11
Stock Machines	2,266.00	1,359.60	906.40	523.65	382.75
Repair Shop	273.00	40.95	232.05	267.26	(35.21)
Printing	8,736.00	5,416.32	3,319.68	2,266.57	1,053.11
Furniture	1,666.00	1,216.18	449.82	643.65	(193.83)
Totals for Month	22,966.00	14,265.55	8,700.45	6,824.99	1,875.46
Totals for Period to Date	119,058.50	73,699.14	45,359.36	34,744.77	10,614.59
Actual					
Supplies	7,315.34	4,389.20	2,926.14	2,144.07	782.07
Library Books	1,555.45	1,088.82	466.63	505.73	(39.10)
G. C. and S. S.	1,411.74	917.63	494.11	410.08	84.03
Stock Machines	1,178.30	600.06	578.24	509.93	68.31
Repair Shop	391.89	103.31	288.58	275.43	13.15
Printing	9,254.39	6,226.82	3,027.57	2,199.35	828.22
Furniture	2,047.28	1,391.51	655.77	618.35	37.42
Totals for Month	23,154.39	14,717.35	8,437.04	6,662.94	1,774.10
Totals for Period to Date	120,146.80	74,134.47	46,012.33	34,455.00	11,557.33

EXHIBIT 2

EXPENSE BUDGET STATEMENT

	Month		Period to Date	
	Budgeted	Actual	Budgeted	Actual
Salaries	3,632.14	3,683.38	18,780.52	19,132.89
Selling Expense:				
Traveling Expense	133.33	100.99	666.65	732.77
Advertising	200.00	199.82	1,000.00	1,034.77
Depreciation	331.80	331.80	1,659.00	1,659.00
Taxes	433.34	307.76	2,166.70	1,902.33
Rent	576.50	576.50	2,882.50	2,882.50
Water, Lights and Fuel	108.00	108.65	540.00	622.61
Telephone and Telegraph	164.00	167.38	820.00	873.78
Insurance	105.00	105.00	525.00	525.00
Misc. Supplies and Expense	200.00	224.71	1,000.00	815.14
Delivery Expense	70.00	7.73	350.00	174.94
Cash Shortage and Overage	-	(5.41)	-	(10.04)
Repairs	20.00	-	100.00	-
	2,341.97	2,124.93	11,709.85	11,232.80
Freight Out	66.67	82.77	333.35	298.19
Administrative Expense:				
Office Supplies and Expense	200.00	173.35	1,000.00	546.46
Depreciation-Office Eqpt.	35.40	35.40	177.00	177.00
Insurance and Bonds	100.00	100.00	500.00	500.00
Donations	8.33	-	41.65	303.00
Bad Debts	20.00	20.00	100.00	100.00
Collection Expense	8.33	-	41.65	-
Supervisory Charge	400.00	425.00	2,000.00	2,125.00
	772.06	753.75	3,860.30	3,751.46
Repair Shop Expense:				
Depreciation	2.15	2.15	10.75	10.75
Traveling Expense	-	15.57	-	15.57
Misc. Supplies and Expense	10.00	.39	50.00	13.34
	12.15	18.11	60.75	39.66
Total Operating Expense	6,824.99	6,662.94	34,744.77	34,455.00

EXHIBIT 3

the store manager and the assistant manager.

We believe that enforcement and control of our budgets are accomplished to a satisfactory degree through the means just stated. An additional incentive results from the fact that most of our store managers and assistants are paid a minimum guarantee, with ultimate earnings based on a percentage of net profits. The manager or assistant manager may look at his budget at the beginning of the period and determine what his earnings will be if the budget is attained and, by the same token, what he will realize if the budget is exceeded.

More Than Worth the Work Involved

All financial data, including budgets, is prepared by the treasurer of the company and myself, along with our secretaries, making a total of four people who spend any time at all on the budgets. That encompasses all phases of budget work, including analysis

work furnished the sales department to assist in their budget preparation, compiling of information for preparation of the cost of goods sold and expense budgets, the assembling of the budget information, typing and, finally, presentation and discussion of results with management. This budget work is done in addition to the many other duties which are the responsibility of the treasurer's office. Our budgets are much more detailed than in prior years, but no new personnel has been added to furnish this information.

Also, by having the information current and readily available as a result of budget policing, new (money saving) practices have been put in operation. For instance, until last year the annual audit of all of our corporations was done by independent auditors, requiring weeks of their time and resulting in a sizable auditors' bill. At the end of our last fiscal year, the audit was made and the audit report prepared for each of our subsidiary companies by the treasurer and myself. The audit of the parent company was made by the independent auditors and our own audit reports presented to them for use in preparing their report covering consolidated operations. This consolidated report was acceptable to our banking connections, Dun & Bradstreet and others to whom we furnish financial information and, needless to say, auditing expense was substantially reduced. This additional responsibility placed on the treasurer's office called for little additional expense, as most of the information was available on a current basis as a result of budget control.

There is another way in which the budget data and our outside audit pair off helpfully. Our parent company is a seasonal business with the majority of our annual sales being made in a three-months period, collections for these same sales being made from four to six months later. This requires establishment of a sizable credit line with our banking connections. In establishing this line at the beginning of our fiscal year, we take both our annual report and our budget to our banker, with our annual report being retained by the banker and the budget reviewed by him to give him an indication of what we expect in future months. We feel that much weight is given to our budget by the bank.

It is impossible to establish the monetary value of budgets but, from our experience, we know that those managers who live by the budget have consistently shown the better operations year in and year out. We give the budgets credit for this.

A Magazine Publisher's Adoption of Budgeting and Direct Costing

by VERNON C. OWENS, JR.

THIS ARTICLE PRESENTS AN EXPERIENCE which discloses how the adoption of a budgetary control system led a publisher, "X" Company, to completely revise its accounting system to include direct costing principles. The starting point lies slightly more than a decade ago.

The accounting staff was increased, not only to facilitate accomplishment of the growing work load but also to add individuals with fresh progressive attitudes and well-versed in theory. In the process of indoctrination and study, new members of the accounting staff found numerous variations in thinking in the publishing industry, as contrasted with accounting practice in other lines.

How Magazine Accounting Differs

Normally we think of accounting, and particularly cost accounting, in terms of applying such techniques as job cost, processing costs or standard costs to a specific manufactured product. The magazine publishing industry, as a business enterprise, differs from others and, consequently, its accounting follows a pattern quite novel to most. The publishing industry has witnessed only slight adoption of standard cost systems. Not that the industry is less progressive from an accounting standpoint, nor that it is any less cost-conscious than others. The infrequent use of standard costs stems basically from an inherent industry characteristic, i.e., that most magazines do not own printing facilities. Contrary to industry practice, Company "X" prints the major portion of its

Publishing is one of the very few industries that consistently sell its end-product at a loss. In fact, the cost of making an original subscription sale alone often exceeds the sale price of the magazine subscription. Publication costs bear slight relationship to the selling price, as such costs are normally looked upon as indirect or fixed in nature. In addition to original subscription

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VERNON C. OWENS, JR., Birmingham Chapter, 1949, is Manager of Accounting of The Progressive Farmer Company. He joined this firm in 1948 after service with Arnold, Keller & Smith, public accountants. Mr. Owen is currently a Vice President of Birmingham Chapter.

sales, a second sales department comes into the picture. Its function is to sell what may loosely be termed a by-product of the magazine—advertising space—which is valued in direct proportion to the accomplishments of the first sales department—circulation sales. The two sales departments, totally different in character and temperament and each selling a different product, together establish the sales price and the degree of profit to be realized from advertising sales.

This paper centers its attention on the financial aspect of magazine publishing, i.e., sales, operating expenses and profit. However, it is well to state that a large volume of circulation sales, advertising sales and a favorable printing contract do not insure a profitable operation. The recent demise of several nationally-distributed magazines, with net paid circulation in excess of three million, illustrates this point. For continued success, magazines must serve specific needs of their subscribers and develop a high degree of readership through their editorial services, policies, and their makeup and appearance.

Development of Budgetary Control System

Until 1948, Company "X" employed an extremely small accounting staff and its efforts were directed towards the recording of history. The limited number of employees did not permit anything other than an efficient bookkeeping operation. Records were not used as a planning tool, since monthly closings were generally not accomplished until the eleventh to fifteenth of the month. Magazine personnel are accustomed to working several issues in advance, so the tardy operating statements created little interest. Department heads seldom sought additional information about individual cost items appearing on these statements. The business was much smaller in those days and the need for modern cost control methods appeared less pressing. The management at that time felt it was able to maintain close contact with each problem.

More current information, faster monthly closings and formalized advanced cost planning were also needed. To achieve these objectives, the decision was made, and accepted by management, to adopt and install budgetary controls recommended by the heads of the company's accounting staff.

With growth the management desired and needed closer cost controls with assignment of specific responsibility to department heads. The transition from a bookkeeping operation to the more modern system was not made overnight. The general manager and key accounting personnel realized that they must not only "sell" the system to department heads but must also educate all concerned in its effective use. Forms were developed exhibiting income and expense by depart-

ments and classifications. Department heads completed these forms with the assistance of accounting personnel. Purposely, expense items were liberally estimated and income items conservatively stated. The first complete budget was issued in 1950.

In each succeeding year, budgets were systematically tightened to perpetuate control and cost education. The summarized budget was carried through to the balance sheet and profit and loss statements. Comparison with the budget was made monthly on the profit and loss statement and quarterly on departmental statements. Full acceptance of the potential uses of the budget came gradually to management. Budgetary control had been installed, was functioning, and benefits were being obtained. Management was more aware of the dollar effect of day-to-day decisions and budgeting brought more alternatives into the picture. The first break-even chart was presented to the board of directors in 1952. At this time, it created little interest, since the company was growing rapidly. Greater emphasis has been placed on the use of these charts in recent years.

The process of budgeting raised these and many other helpful questions:

1. How much should be included for editors' travel?
2. How much advertising linage must an issue carry to break even?
3. How much linage does a salesman have to sell to break even?
4. How much more profit could be realized if the ratio of advertising linage to total linage were increased by one per cent?
5. What is the effect on profits when four-color linage increases at the expense of black and white and two-color linage?

The use of the budgetary system also led to the discovery of important weaknesses in accounting reports which were in need of attention. Some of these were:

1. Operating statements were not serving the needs of management, particularly department heads.
2. Department heads ignored approximately one-third of their departmental cost items. They glossed over all fixed charges and other items they could not readily control and, as a result, proper attention was not given to the controllable items.
3. Budgetary control by departments was much too broad in scope. For example, the executive editor could not measure performance by natural sub-divisions, such as editorial, home, and art departments.
4. The card of accounts was found to be inadequate for the dynamic growth of the business that was taking place. For example, the

advertising department expenses increased 70 per cent in the brief span of five years.

5. Monthly closings were still too slow to efficiently serve the needs of management.

The realization of the above defects in the accounting system became more apparent as each annual budget was prepared or revised.

Refinements to the Budgetary Control System

Since the first application of budgetary control was inadequate, extensive study was begun to determine industry practice. Three publishers' systems were reviewed and copies of financial statements obtained. Two college theses and published material in accounting journals and bulletins were reviewed thoroughly. As the study progressed, a large amount of time was spent researching direct costing principles used by many companies. In 1952, the Magazine Publishers Association completed the first of a series of studies designed to bring about a measure of uniformity in accounting principles and practices followed by its members and issued a comprehensive loose-leaf "Manual of Uniform Accounting for Magazine Publishers." This manual confirmed the data obtained from outside research and became a major source of reference. Relying heavily on it and on a set of financial statements obtained from a competitor, a clearer picture developed as to the type of system best suited to the present and probable future position of Company "X".

To overcome the first and most consistent objection to the old system, i.e., assignment of costs which department heads could not control, direct costing principles were included. The desire was also present to emphasize variable costs in the cost-volume-profit relationship. The principal obstacle to direct costing in a manufacturing concern is valuation of inventories and adjustments necessary for income tax purposes. This controversial issue does not apply to publishers. It is an industry practice not to inventory work-in-process or finished goods. Inventories normally consist only of such items as paper, ink, engravings, photos, art-work and manuscripts.

Under the revised system it was decided that only readily controllable costs would be charged to each cost center. These costs are those which can easily, obviously and conveniently be identified with a specific cost center. The following costs were removed from departmental statements by grouping them under administrative expense for the attention of top management only:

Period Costs	*Semi-variable Costs*
Rent	Utilities
Amortization of leasehold improvements	Office maintenance and repairs
Insurance	Office services
Depreciation on all office furniture	General office stationery and supplies
	General office postage
	Telephone & Telegraph—basic or trunk charge

Department heads had previously asked the accounting department to set the budget for supplies. Therefore, stationery, envelopes, letterheads and office supplies used by all departments are now charged to administrative expense. However, direct orders for specific forms, promotional material, order blanks, etc., are charged to the requesting department. Similar to office supplies postage on all general office correspondence is charged to administrative expense but regular and special mailings of promotional material, magazine distribution, surveys, and subscription notices are charged to the appropriate cost center. Basic telephone and telegraph costs are charged to administrative, but all toll calls and telegrams are charged to cost centers.

The next and equally serious objection to the original budgetary control system was that control by departments was much too broad in scope. Revisions were made in the monthly financial statements to recognize existing natural breakdowns within departments. For instance, most employees commonly referred to the editorial department, home department, and art departments separately, yet they had previously been combined under the single heading, "editorial department." The new reports permit management to pinpoint and isolate areas that need special attention.

In the process of clarifying the organizational picture for better cost control, a new department was created and held responsible for all maintenance work. Previously maintenance had been decentralized to the several departments requiring this service and an effective statement of these important costs was almost an unknown quantity. Since this publisher is one of the few printing its own magazine, the maintenance department serves both plant and office departments. Maintenance and repairs for all office departments are charged to administrative expense. Plant departments' maintenance and repairs are now charged to the department requesting the service. Non-chargeable time is not distributed but is stated separately as stand-by maintenance cost.

DEPARTMENTAL OPERATING STATEMENTS—CAPTIONS

(In use this is a four-sheet statement—one for each department. To the left of each expense item is shown the results for the current issue with columns for actual, variance from budget and variance from last year. To the right of each expense item is shown the year-to-date results with columns for actual, variance from budget and variance from last year.)

ADVERTISING	EDITORIAL	CIRCULATION	ADMINISTRATIVE
SELLING: Salesmen Salaries Steno. & Clerical Salaries Commissions (Townsend) Supplies Telephone & Telegraph Travel Entertainment P.F. Sales Conferences Public Relations Sub'ns, Dues and Services Branch Office Occupancy Miscellaneous Total	EDITORIAL—GENERAL: Editors & Assoc. Editors Assistants & Researchers Steno. & Clerical Correspondents Payroll All Edition Dept. Editors Fiction Supplies Telephone & Telegraph Travel & Entertainment P.F. Editorial Conferences Public Relations Sub'ns, Dues & Services Mail Service Cost Master Farm Family Reader Surveys Branch Office Occupancy Miscellaneous Total	SUBSCRIPTION PROMOTION GENERAL OFFICE Salaries Supplies Travel and Entertainment Subns. Dues & Services Miscellaneous Total NEW BUSINESS MAILINGS Paper & Printing Postage Mail Service Cost New Business Inserts List Rental Total RENEWAL MAILINGS Paper & Printing Postage Mail Service Cost Renewal Inserts Total RURAL SALES EXPENSE Salaries Supplies Telephone & Telegraph Travel & Entertainment Public Relations Free Copies Agents Awards Agents Commissions Net Subscription Turn-In Payments to Agents Branch Office Occupancy Miscellaneous Total Total Sub'n Promotion Exp. SUBSCRIPTION FULFILLMENT Regular Salaries Part Time Salaries Supplies Stencils Maintenance & Repairs Miscellaneous Total TOTAL CIRCULATION EXP. NET PROFIT-(LOSS) FOR DEPT.	GENERAL: Salaries— Administrative Accounting Supplies Postage Telephone & Telegraph Travel & Entertainment Public Relations Sub'ns, Dues & Services Per Diem Bad Debts Legal & Auditing Contributions General Insurance General Taxes Miscellaneous Total BUILDING EXPENSE: Salaries— Regular Overtime Cleaning Supplies Building Supplies Depreciation—All Depts. Amort. Leasehold Imp. Rent—Birmingham Electricity Water Gas Maintenance Contracts Maint. & Repairs—Office Miscellaneous Total EMPLOYEE BENEFITS: Social Security Taxes Group Insurance Hospital Insurance Activities & Health Total
PROMOTION & MDSG: Salaries Supplies Telephone & Telegraph Travel & Entertainment Public Relations Advertising Media Presentations & Sales Aids Direct Mail Mail Service Cost Merchandising Cost Rebilled Mdsg. Income Free Copies Miscellaneous Total	HOME: Editors & Assoc. Editors Assistants & Researchers Steno. & Clerical Supplies Telephone & Telegraph Travel & Entertainment Public Relations Sub'ns, Dues & Services Miscellaneous Total		
RESEARCH: Regular Salaries Part Time Salaries Supplies Postage Telephone & Telegraph Travel & Entertainment Mail Service Cost Reader Surveys Miscellaneous Total	ART: Art Salaries Photographic Salaries Supplies Photo Supplies Telephone & Telegraph Travel & Entertainment B&W Photos Purchased Outside Art Work B&W Engravings 2-Color Engravings Miscellaneous Total Less: Art for Other Depts. Total		
PRODUCTION: Salaries Supplies Telephone & Telegraph Travel & Entertainment Shipping Expense Miscellaneous Total			
TOTAL ADVERTISING COST	TOTAL EDITORIAL COST		TOTAL ADMIN.-GENERAL

EXHIBIT 1

Revisions in Accounts and Reports

Departmental operating statements were revised to reflect the many refinements made in the accounting system. Exhibit 1 illustrates the breakdown of the four office departments into sub-sections and shows the type of expense charged to each. The statement it reflects does not exhibit amounts for the

budget and actuals for last year but does give the amount of variance or change from these in the current period. It is felt that better control is exercised by emphasizing the variance and not the base from which measurement was made.

The company's exceptional growth and expanded accounting system, together with the adoption of direct costing, resulted in a complete revision of the card of accounts. The experience of a comparable sized competitor was drawn upon, as was the manual already referred to. Our revised code employs fewer digits than recommended but does provide ample space for expansion. A two-part code is used, e.g., 3-50. The first numeral designates the cost center and the second signifies the expense classification.

The problem of obtaining earlier monthly closings is not peculiar to the magazine industry. A combination of a complete revision of the branch office reporting system, work reassignment, improved monthly statements and other refinements previously referred to has resulted in a smoother and earlier monthly closing. The financial statements are presented to management on the fourth work-day and are closely followed by departmental operating statements. In order to speed up the interval between closing and the issuance of statements, cents were eliminated from all financial reports. In addition, pre-printed ditto masters are used to reduce reproduction time.

The transition to the new system was relatively easy, since all personnel were included in the planning stage and understood the proposed changes. Branch office personnel were brought into the home office for briefing and each reclassified his previous month's expenses on the revised system. Lack of comparative figures with the previous year or years posed a problem, as it was not feasible to redistribute prior year's expenses on the new basis. Therefore, the first month stood alone. The next two months were compared with the previous month. Then a complete budget was prepared on the new basis and the remainder of the year was compared with the budget. This developed a firm habit of comparison with the budget rather than with history. Even though comparisons are made with the corresponding period for the previous year as well as budget, almost all discussions now involve variances from the budget. In short, what first was considered a problem developed into an unexpected benefit.

Initial Results and Future Planning

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ADVERTISING

SELLING:
- Salesmen Salaries
- Steno. & Clerical Salaries
- Commissions (Townsend)
- Supplies
- Telephone & Telegraph
- Travel
- Entertainment
- P.F. Sales Conferences
- Public Relations
- Sub'ns, Dues and Services
- Branch Office Occupancy
- Miscellaneous
- Total

PROMOTION & MDSG:
- Salaries
- Supplies
- Telephone & Telegraph
- Travel & Entertainment
- Public Relations
- Advertising Media
- Presentations & Sales Aids
- Direct Mail
- Mail Service Cost
- Merchandising Cost
- Rebilled Mdsg. Income
- Free Copies
- Miscellaneous
- Total

RESEARCH:
- Regular Salaries
- Part Time Salaries
- Supplies
- Postage
- Telephone & Telegraph
- Travel & Entertainment
- Mail Service Cost
- Reader Surveys
- Miscellaneous
- Total

PRODUCTION:
- Salaries
- Supplies
- Telephone & Telegraph
- Travel & Entertainment
- Shipping Expense
- Miscellaneous
- Total

TOTAL ADVERTISING COST

EDITORIAL

EDITORIAL—GENERAL:
- Editors & Assoc. Editors
- Assistants & Researchers
- Steno. & Clerical
- Correspondents Payroll
- All Edition Dept. Editors
- Fiction
- Supplies
- Telephone & Telegraph
- Travel & Entertainment
- P.F. Editorial Conferences
- Public Relations
- Sub'ns, Dues & Services
- Mail Service Cost
- Master Farm Family
- Reader Surveys
- Branch Office Occupancy
- Miscellaneous
- Total

HOME:
- Editors & Assoc. Editors
- Assistants & Researchers
- Steno. & Clerical
- Supplies
- Telephone & Telegraph
- Travel & Entertainment
- Public Relations
- Sub'ns, Dues & Services
- Miscellaneous
- Total

ART:
- Art Salaries
- Photographic Salaries
- Supplies
- Photo Supplies
- Telephone & Telegraph
- Travel & Entertainment
- B&W Photos Purchased
- Outside Art Work
- B&W Engravings
- 2-Color Engravings
- Miscellaneous
- Total
- Less: Art for Other Depts.
- Total

TOTAL EDITORIAL COST

CIRCULATION

SUBSCRIPTION PROMOTION

GENERAL OFFICE
- Salaries
- Supplies
- Travel and Entertainment
- Subns. Dues & Services
- Miscellaneous
- Total

NEW BUSINESS MAILINGS
- Paper & Printing
- Postage
- Mail Service Cost
- New Business Inserts
- List Rental
- Total

RENEWAL MAILINGS
- Paper & Printing
- Postage
- Mail Service Cost
- Renewal Inserts
- Total

RURAL SALES EXPENSE
- Salaries
- Supplies
- Telephone & Telegraph
- Travel & Entertainment
- Public Relations
- Free Copies
- Agents Awards
- Agents Commissions
- Net Subscription Turn-In
- Payments to Agents
- Branch Office Occupancy
- Miscellaneous
- Total

Total Sub'n Promotion Exp.

SUBSCRIPTION FULFILLMENT
- Regular Salaries
- Part Time Salaries
- Supplies
- Stencils
- Maintenance & Repairs
- Miscellaneous
- Total

TOTAL CIRCULATION EXP.

NET PROFIT-(LOSS) FOR DEPT.

ADMINISTRATIVE

GENERAL:
- Salaries—
  - Administrative
  - Accounting
- Supplies
- Postage
- Telephone & Telegraph
- Travel & Entertainment
- Public Relations
- Sub'ns, Dues & Services
- Per Diem
- Bad Debts
- Legal & Auditing
- Contributions
- General Insurance
- General Taxes
- Miscellaneous
- Total

BUILDING EXPENSE:
- Salaries—
  - Regular
  - Overtime
- Cleaning Supplies
- Building Supplies
- Depreciation—All Depts.
- Amort. Leasehold Imp.
- Rent—Birmingham
- Electricity
- Water
- Gas
- Maintenance Contracts
- Maint. & Repairs—Office
- Miscellaneous
- Total

EMPLOYEE BENEFITS:
- Social Security Taxes
- Group Insurance
- Hospital Insurance
- Activities & Health
- Total

TOTAL ADMIN.-GENERAL

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Initial Results and Future Planning

Management's reception of the revised accounting and budgetary control system has been enthusiastic. Enlargement of expense classifications brought

immediate attention and resulted in substantial savings through improved identification of costs. For example, variable costs of free magazines were charged to cost centers requisitioning the books. The following month free copies, which represents a sizeable annual expense, were reduced more than one-third. Likewise, advertising and editorial conference costs were decreased 26 per cent through more effective planning. The greatest benefit has been derived from each department head being able to include section heads in the budgeting process when annual plans are made. Responsibility for all costs is pinpointed. A keen interest has been displayed in a greater per cent of all items listed for each department, than was the case before.

An effective start has been made, but much remains to be done. Company "X" must continue the program of eliminating "water" from the budget to ensure a sound competitive position. This can be done by improving the income forecast and preplanned profit techniques. Forecasting methods are being studied and improved. The use of the flexible budget is being considered to better control variable costs in the printing operation. More emphasis will be placed on the analysis and reduction of the so-called fixed elements of costs to avoid burying them in administrative expense. Additional statistical data will be added to current departmental statements. These and other data would be helpful in developing trends:

1. Advertising, promotion and selling expenses as a per cent of net billing.
2. Average promotion and selling cost per advertising page.
3. Average editorial cost per editorial page.
4. Average cost per new order by subscription sources.
5. Fulfillment cost per thousand copies serviced.

A long-range planning committee is in operation and plans are under way for the annual preparation of a three-year budget. The practice of revising the current annual operating budget will be continued as conditions warrant. This expansion of service to management will require a larger and more versatile accounting staff. Members of the present staff are being encouraged to study by means of a company-sponsored program. Future additions to the staff will come from the employment of young accountants who are well grounded in theory and techniques.

The management of Company "X" feels that a considerable forward step was taken when budgetary control and direct costing were adopted. Substantial cost savings have already resulted from the new concept in accounting cost controls. Additional savings are anticipated.

Better Federal Government Accounting—the Accrued Cost Basis*

by ERLE CATO

NUMEROUS SURVEYS have been made of the accounting needs of the Federal Government, exclusive of revenue accounting. These have almost unanimously confirmed the opinion of governmental accountants that the traditional fiscal budgeting and accounting system is inadequate for management needs. Among the most recent and most highly publicized of these surveys are those of the two Hoover Commissions.

The ground rules guiding the first of the Hoover Commissions restricted it largely to a review of the functions being performed by Government and to recommendation concerning organizational consolidations and re-alignments. However, a "task force" on budgeting and accounting was also formed which included the chairman and six members of the Committee on Federal Government Accounting of the then American Institute of Accountants. This task force made numerous recommendations, the most important from the stand-point of this article being those for a "program or performance budget" and for keeping the accounts of government on an accrual basis.

The second Hoover Commission went more deeply into the accounting systems and procedures used. Summarized, their recommendations provide for (1) formulation of the agency program budgets in terms of accrued cost, (2) presentation of these budgets to the Congress in terms of "accrued expenditures," an invention to be explained subsequently, (3) enactment of all appropriations in terms of "accrued expenditures" coupled with elimination of all appropriations providing for agency needs beyond the budgeted year, (4) Congressional control of the agency through distribution of the "accrued expenditure" authority, and (5) use of internal cost-based operating budgets for internal agency control.

These recommendations, of course, tend away from the unqualified recommendations of their predecessors for accrual accounting methods. Three requirements of this more recent proposal are immediately apparent. These are the necessity for transposing accrued cost into "accrued expenditures" for presentation to the Congress, the necessity for transposing the enacted "accrued expenditure" authority back into cost for internal agency control, and the necessity for distribution of this "accrued expenditure" authority to the field stations as a limitation upon their operations.

The "accrued expenditure" concept had its origin in yet another financial management survey, this one devoted to the military departments comprising the Department of Defense. That survey took note

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ERLE CATO is a System Accountant with the Department of the Army. He has been associated with the Federal Government since 1933, starting with the U.S. Geological Survey. Since then he has worked for the War Assets Administration and with the Veterans Administration. Mr. Cato emphasizes that all opinions in his article are his own and can not be attributed to any other individual or organization.

* See Note at end of article.

of the fact that some of the periodic appropriations for these departments "provided funds" for long-term and expensive undertakings, such as aircraft contracts and warship construction. Once the appropriation was enacted, the job could be started and, once started, there was no provision for further Congressional review in subsequent years to determine whether the need continued. This survey, accordingly, invented a new fiscal-type value they called "accrued expenditures," defined as "the goods and services received during the year, whether or not payment has been made and whether or not invoices have been received." The second Hoover Commission, in order to control these relatively few (though admittedly expensive) projects, proposes to apply this rather confusing fiscal value and limitation to all of the voluminous accounting transactions of government.

Traditional Accounting Structure

At this point, it appears in order to examine the composition of the traditional and inadequate fiscal budgeting and accounting structure, thereby providing a basis for comparison. In the first place, budgets now presented to the Congress are stated in terms of "expenditure authority." (Each budget covers agency needs under one appropriation but a number of departments operate under more than one appropriation). Following enactment by the Congress, this expenditure authority is passed downward through a sequence known by various titles at various levels to the level which will "make" the expenditure.

The appropriation and the expenditure authority, by whatever name it is called at each level, must not be confused with cash. (Failure to make this distinction is one of the pitfalls that entrap commercial accountants attempting to operate within government). All cash collected by governmental entities, with a few specific exceptions, must be deposited intact to the appropriate fund of the U. S. Treasury. Except for the few specific exceptions, the balances of these funds are the only true cash balances in the Federal Government. This cash is distributed through recognized disbursing channels which head up into the Treasury. Responsibility for this cash is a personal, not an organizational, responsibility of the holder. For example, certain agencies, such as the Veterans Administration, require frequent small cash disbursements at their offices. An agent cashier is named within the Veterans Administration at such offices and he receives the requisite cash directly from the appropriate Treasury disbursing officer. Any loss of cash by the cashier is a loss to the Treasury funds, not to the Veterans Administration.

When the Congress, through an appropriation, authorizes expenditure of cash on behalf of an agency, an appropriation accounting classification is established which identifies, among other things, the Treasury fund against which the check is to be drawn. Accordingly, the "consumption" of the expenditure authority by the agency is accompanied by, but is not synonomous with, a Treasury disbursement. The enactment of an appropriation is not accompanied by a transfer from the Treasury fund to the appropriation account, and collections into the fund seldom affect the appropriation balance. This relationship can probably be most nearly described by saying that, in lieu of cash, the Congress provides each agency with a letter of credit and the agencies split the letter of credit up between the individuals they authorize to expend it.

Though effective within limits as an overall control over expenditures, this offers little for financial management. An effort

is made to provide better data through classification of the expenditures, as made, to subordinate budgetary accounting classifications within each appropriation. Each of these classifications is expected to show the amount expended for each budget program and sub-program. This, of course, is an impossible requirement with respect to expenditures made for inventory, for redistributable overhead, or for any other resource deferred from cost.

Since agencies perform work for one another, a procedure for transferring costs between installations and appropriations is also required. Army arsenals do work for the Navy and, in addition, many governmental field installations operate under more than one appropriation. An effort is made to meet the need created by this situation, in part, through inclusion in agency budgets of the expenditures expected to be made on behalf of others. An elaborate procedure is set up to collect and measure collections effected against the "anticipated reimbursements" increment by which the agency's expenditure authority for its own operations is augmented. Since budgets are formulated more than a year in advance of the budgeted year, since it is impractical for an agency to provide firm plans until its own budget is enacted into law, and since the procedure is not only cumbersome but is, perforce, based on expenditures rather than cost, this effort is largely a failure.

The following are the primary basic faults of the traditional fiscal budgeting and accounting system:

1. It is based on expenditure authority, a value which precludes development of accrued cost.
   a. It necessitates classification to a budget program of this expenditure authority at the time of expenditure (or incurrence of an obligation to pay), an obvious impossibility.
   b. It has no provision for costing inventory, or other values deferred from cost, into costs.
   c. It has no provision for accumulation and distribution of overhead into benefiting budget programs.
2. It fails to arrive at the cash requirements of the agency for any stated period (since expenditure authority for the needs of any year may be actually expended in a following year). It accordingly fails to provide information necessary for soundly-based tax legislation or borrowings.
3. It has no provision for review of the levels of inventory or other resources and, therefore, fails to exert any influence towards reduction of these resources to the minimum required for operations.
4. It has no workable method for transfer of costs between agencies or between appropriations.
5. It provides no real Congressional control below agency level. This is what is *actually* meant by the sonorous and inaccurate phrase that "Congress has lost control of the public purse."
6. It focuses attention of the using agency upon living within allotments of expenditure authority rather than upon the cost of operations.
7. Since succeeding budgets are based upon historical expenditures and since expenditures are not directly related to costs, it fails to provide firm data for budgeting and for appropriations.

There are many other weaknesses in this system but they are mostly derived from one or more of the foregoing points.

Evaluation of "Accrued Expenditure" Concept

Now, then, let us measure the "accrued

expenditure" proposal against these same short-comings.

First, "accrued expenditures" themselves also constitute a value which precludes control over accrued cost. The point of fiscal control is only shifted from the point of expenditure (or obligation) to the point of receipt of the goods or services. It is true that the recommended package includes a cost system which will meet this objective but the cost system is separable from "accrued expenditures." In other words, "accrued expenditures" need to be supplemented by an accrual accounting system but it does not follow that an accrual system requires "accrued expenditures."

Second, although it may be pleaded that actual cash expenditures are more closely related in time to "accrued expenditures" than to expenditure authority, it cannot be said that "accrued expenditures" for any period will equal cash requirements for that or any other specific period. The task force of the second Hoover Commission, itself, noted this weakness of the fiscal system on page 35 of its report. Despite this, a cure was not provided.

Third, the process by which the agency cost-based budgets are to be converted to "accrued expenditures" necessitates consideration of contemplated changes in levels, themselves. Consequently, the "accrued expenditure" package, like the traditional fiscal system, fails to exert an influence against holding of excessive inventories and attendant costs.

Fourth, there is no provision in the "accrued expenditure" package for simplification of transfer of costs between agencies or appropriations. In fact, as will be shown in a subsequent paragraph, the apparent plan for continuing the present unsatisfactory fiscal principles will result in deepening of the problem.

Fifth, the report of the second Hoover commission condemns "proliferation of allocations, allotments, and sub-allotments" on page 36 of the report of the full commission and on page 68 of the task force report. This would indicate that any change planned is in the direction of less detail control, but no specific restriction is placed on budget program limitations of "accrued expenditure" authority under each appropriation.

Sixth, also stated on the reference pages is the second Hoover Commission's objection to the emphasis on "living within allotments" resulting from the traditional fiscal system. While it is true that the "accrued expenditure" package provides for agency (not Congressional) use of internal operating budgets, it is also true that the absolute limitation of that system, imposed by the Congress and backed up by the Anti-Deficiency act, will be the allotment of "accrued expenditures." While introduction of internal operating budgets might possibly modify the emphasis, the statutory penalties will still be paramount.

Seventh, although the cost accounting system proposed to accompany "accrued expenditures," will provide a firmer basis for budgeting, the addition of the "accrued expenditures" with its necessity for conversion into cost by appropriation, will weaken the operation. This is shown in the following paragraph in details.

The nature of "accrued expenditures" introduces problems not present in the traditional system. Contemplated changes in inventory and other resources are required to transpose accrued costs into "accrued expenditures." Since numerous governmental agencies, and even individual installations, utilize more than one appropriation and since the budget must be presented by appropriation, it becomes necessary to develop the contemplated change in inventory *by appropriation*. Envision this problem at an Army installation doing re-

search and production, which are covered by different appropriations. One solution, not a very good one, would be complete physical separation of inventories by owning appropriation, with duplicating warehouses, warehouse crews, etc. Another might be to segregate only the inventory records by appropriation, but this is only slightly "less worse" than complete duplication. Another solution might be a decision by each agency to hold inventories under one arbitrarily selected appropriation. This would mean, first, that we must look in, say, the production budget to find the net planned change due to both research and production and, second, that we must multiply transactions under the ineffective "anticipated reimbursements" operation to transfer costs of issued materials, etc., from the owning appropriation to the consuming appropriation. Similar problems would be involved in accumulating and distributing both other resources and overhead costs.

So, summarizing, it is apparent that the "accrued expenditure" package will slightly improve some of the unsatisfactory results of the traditional fiscal system (and a major part of the improvement will be attributable to separable procedures), will perpetuate and even increase others, and will actually cure only the situation (long-term projects appropriations) for which it was originally designed.

It is the author's opinion that substitution of an amendment of procurement statutes and the Approved Project Law, plus adoption of the Hoover Commission proposal to eliminate all but annual appropriations, will accomplish the primary purpose of the "accrued expenditure" plan without any necessity for re-designing the whole traditional fiscal system to accomodate this new base. If this is correct, the "accrued expenditure" proposal becomes "accounting for accounting's sake."

A Remedy—The Allowable Cost Basis

The author further believes that the ultimate solution for government accounting is pointed out in the various surveys which have been made, including those of the two Hoover Commissions. Almost without exception, these have hammered away at one point—cost, cost, cost. Then, why not proceed to the logical conclusion and state Congressional appropriations in terms of allowable costs? The sole variation between this proposal and present business is that the allowable cost in government, rather than being a guide alone, will become an absolute limitation.

Under this concept, the present effort to fix fiscal limitations by Treasury fund, by department, by appropriation, would be replaced by fiscal limitations by Treasury fund, by department budget, without sub-division below that level. Each agency would submit a single budget for those of its operations financed from the Treasury general fund, this budget being stated in terms of allowable cost. The current appropriations of agencies now financed from multiple appropriations would become primary budget programs. Such a budget can be subdivided in whatever degree of detail is desired and, when enacted, any sub-division at any level can be made a statutory limitation on the allowable cost which may be incurred for the budgeted purpose. This budget would be accompanied by historical and forecast balance sheets which would be supported, in turn, by schedules of anticipated changes in balance sheet items. One of these schedules would reflect time-phased cash requirements, providing a basis for tax legislation and Treasury borrowings. The anticipated balance sheet changes would also become statutory limitations on individual agencies, to the requisite degree. This would establish the necessary control over cash levels of inventories and other resources.

Recognizing that, when you control costs within a procuring agency, there is no need to control the same costs within a producing agency, the "anticipated reimbursements" operation can be safely discarded. Costs of goods or services can then be transferred between agencies by uncomplicated direct reimbursements.

Separate budgets, in addition to departmental budgets, will be required only for operations for which special Treasury funds are maintained. Where these are administered by an agency which also has general or other fund operations, it will be simple to perform all work under the general or primary fund budget of the agency and transfer the costs upon completion. Since these special funds rarely require significant inventories for their purposes, there should be little effect on departmental inventory levels. The chances of "augmentation" of an appropriation should be negligible.

It is not represented that there is anything startlingly new about the procedure proposed here. The only unusual feature is the proposal to use it in Government. If the reader will measure the plan against the shortcomings of both the traditional and "accrued expenditure" fiscal systems, he will find that it meets every need. In short, accrued cost, not accrued expenditures, is the answer for government.

NOTE

Since this paper was written H.R. 8002 has been enacted into law. It provides for "accrued expenditure" accounting for individual agencies when it is certified by the President that the agency has in force a satisfactory system of accrual accounting. It is expected that implementation of the law will take a matter of several years. The statute has an expiration date of April 1, 1962. It has been characterized by the *Journal of Accountancy* as marking "further progress toward sound Federal financial management."

New Tools for Utility Management—The Role of the Cost Accountant

by WESLEY B. ORR, JR.

IN AN ATTEMPT TO DEFINE THE POSITION OF THE COST ACCOUNTANT in the public utility, it becomes necessary to discuss areas of management considerably outside the scope of cost accounting. In fact, it soon becomes apparent that cost accounting achieves its maximum effectiveness only when it is an integral part of management decision-making. As a consequence of this realization, this paper has been amplified to include a discussion of management planning and control which is a prerequisite to the proper utilization of any cost accounting system. Furthermore, with a growing awareness of the importance of electronic computers and operations research, a form of organization is outlined in which management can most effectively avail itself of the abilities of the cost accountant together with these new management tools.

Obstacles to Greater Recognition of Cost Accounting in Utilities

Historically, cost accounting has played a specialized role in the public utility accounting field. Most utilities have a basic uniform system of accounts prescribed for them by the Federal Power Commission. Utilities not subject to regulation by the Federal Power Commission have the same system of accounts prescribed for them by the various state commissions. Emphasis in the past has been on the proper recording of plant additions and retirements to substantiate the base upon which rates are established, to provide a record of plant additions available under the terms of mortgage indentures, and for depreciation and tax purposes. Expenses and revenues have been assembled under rather broad classifications for income statement purposes. Here, emphasis is generally in comparison with prior periods and availability of earnings for dividends. In recent years, most utilities have been refining their systems of responsibility accounting in an attempt to develop standards of work per-

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WESLEY B. ORR, JR., Detroit Chapter, 1952, is presently with the Electronic Programming Department, Detroit Edison Company, Detroit, Michigan. He joined this company in 1937, where he served in several accounting and administratife positions before being named to his present position. Mr. Orr is a graduate of the University of Michigan.

formance. Nevertheless, the need for cost accounting has been regarded as limited for a variety of reasons, some of which are listed below:

1. Accumulations of costs of individual products are not required because utilities normally produce and distribute a single product or service.
2. Method of accounting is prescribed by regulatory bodies.
3. Rates are regulated by state commissions which limit the return on investment.
4. Manpower requirements are usually quite static over long periods of time. Furthermore, the policy of most utilities does not permit reduction in work force by outright release in times of reduced activity.
5. Utilities are not as competitive as other industries.

Each of the points cited above presumably emphasizes a basic difference between utilities and other industries which would minimize the need for cost accounting. I am of the strong opinion that rather than being reasons for limited need of cost accounting, they constitute a lack of recognition by utility management of the role that cost accountants should be assuming in the utility field. Although, basically, the statements are true, they are not related to the need for cost accounting.

How then are utility managements going to become aware of the importance of cost accounting in the utility fields? What are management needs in the area of cost accounting? Before an attempt is made to further define the role of the utility cost accountant, let us examine some changing concepts of management in the area of planning and control which, if properly developed, will clarify the role of the cost accountant.

Changing Concepts of Management Planning, Control and Decision-Making

What basic changes in managing are required? How can these changes be achieved? A quotation from an article by T. F. Bradshaw in the October 1952 issue of the *Controller* on the difficulties in introducing the concepts of effective planning and control is pertinent here:

> "New ways of managing do not arise because a management theorist writes a book; they arise because the facts of life of business change and, in order to survive, management changes with them. It seems to me there have been two basic changes in the facts of business life in recent years:
>
> "First, profits are no longer the guidepost for most business decisions.

"Second, in most medium and large size companies, the job of president has become too big for one man.

"Both of these changes are forcing a new way of managing on much of American business management."

Although the article was written over six years ago and did not mention public utilities, it appears to quite aptly describe the conditions in utilities today.

The problem stated in the quotation might be re-stated by asking the question: What changes in management are necessary to make profits the guidepost for business decisions and to reduce the job of president in larger companies to one of manageable proportions? The answers to these questions begin with the development of an adequate system of planning and control. To this must be added a cost accounting staff whose prime function is one of service to operating departments. We are then ready to take advantage of two new management tools which, if used properly, can achieve far-reaching improvements in the efficiency of utility operations. Through operations research, the complex interrelationships of the various utility functions are better defined. Through use of electronic computers complete new designs of data processing systems emerge to integrate and automate clerical efforts.

Perhaps greater recognition of the need for adequate planning and control is prevalent today to the extent that some progress is being made. However, in relatively few cases has the problem been adequately solved. Many factors combine in making the development of an effective planning and control organization difficult. Among these are:

1. Difficulty in translating academic concepts of planning and control into effective action.
2. Necessity of full understanding and cooperation of the president and other top management personnel to make the program effective.
3. Failure to utilize costs as a management tool.
4. Lack of unanimity of top management in defining and working toward common objectives.
5. Existing organization often not compatible with effective control; conflicting lines of authority and responsibility making effective results next to impossible.
6. Individual management prerogatives based on long-established practices, tending to keep the *status quo* of an organization.
7. Even though existing management practices indicate a need for a change, reasonably satisfactory profits pose an obstacle to progress which only a severe recession would overcome.

The large proportion of fixed costs associated with a utility's operation places a premium on long-range planning and effective cost control. In general, while a utility itself should be judged by profits, individual decisions may or may not add up to profits. Each member of a management group is motivated by the standards of the world he lives in, be it production, selling or accounting. Decisions made in accordance with these varied standards not only do not add up to profits but, in fact, insure that profits are not maximized. Individual managers left to their own devices create unbalanced management. Thus, providing management with the means of insuring that individual decisions are related to the attainment of a profit goal is the key to effective planning and control. Management planning and control is based upon the acceptance of the importance and validity of four prime objectives. These objectives are:

1. Setting a reasonable profit goal.
2. Setting departmental objectives which collectively will achieve the profit goal.
3. Measuring profits against standards.
4. Making continuous adjustments to keep the whole organization moving in balance toward the common goal.

Practically all of management decisions should be based on either a direct or indirect consideration of costs. What emphasis should we place on developing proficient supervisory personnel? How soon should we add plant capacity to meet anticipated future demands? Should we repair or replace a given piece of equipment? In each of these situations, costs should be a dominant factor in the decision made. In most cases the quality of the decision will be a direct function of the reliability of cost information available. However, operating management is continously making decisions of this type without adequate cost information. The problem is twofold:

1. Having the costs available.
2. Selecting costs applicable to the problem at hand.

In many cases the costs are not in suitable form to be valuable to the manager making the decision, without detail analysis. The problem is further complicated by typical lack of familiarity of the manager with cost data and a corresponding lack of understanding of the problem on the part of the accountant who understands the cost data.

The obvious answer to this apparent dilemma is to merge the skills of the manager and the accountant. This can be accomplished most effectively by setting up a small staff of well-trained cost accountants whose prime function would be to provide service to operating departments. Assignment of one or

more cost accountants to work with each major operating department would soon provide a group of accountants familiar with operating problems. This concept could be extended to the creation of a management service department which would include cost accountants, an operations research team, a staff of electronic programmers and a staff of system design men. This staff department should report to a high management level. Such an organization would provide maximum availability of specialized talents. It would also be a major integrating influence in the utilities operation. The company would benefit by application of broader outlooks into its many management problems. Increased knowledge of company operations would permeate the complete organization.

The remainder of this paper is devoted to a discussion of aids to management planning, control and decision-making, which could be available from a management services department. The role of the cost accountant in the areas of budgeting and functional costs studies with an illustration of a specific application to a spare parts problem is first presented. Following this is a discussion of the new tools of operations research and electronic computers.

Budgeting and Functional Cost Studies

Budgeting is a tool for management planning and control in which the accountants' participation is traditional. After over-all goals have been established and translated into individual departmental objectives, they are expressed in dollars in the budget. The budget should be used as a device for setting standards of performance, for measuring actual results and for guiding management to satisfactory achievement. Budgets can be applied separately to individual units of the business, but they are much more effective when they are part of an integrated plan for the whole business. Effective budgeting and control is based on a clear-cut organization structure together with clear-cut definitions of responsibilities and authorities.

While the cost accountant is of considerable value in analyzing reasons for budget variations, he can be of even greater value in analyzing costs of functions. In this type of analysis, past performance should be taken as a starting point only. Comparisons to other utilities as to work units performed for comparable functions would yield startling discoveries. Like functions performed within different organization structures make off-hand comparisons difficult and it is only after close scrutiny that costs of like functions within different utilities can be put on a truly comparative basis. However, when this type of analysis is made properly, differences for like functions would be found, both in units of work performed and in methods of performing them.

The results of such a study might suggest elimination of certain work units as being unnecessary and possible revisions of other operations to achieve increased efficiency. Functions considered in such a cost study could include such widely varied activities as maintenance of power plant equipment, sales promotion activities, accounts payable, warehousing and transportation. Cost studies of this type should be undertaken only at the request of the manager responsible for the function being considered. Furthermore, they should only be undertaken with the cooperation and participation of his assigned personnel. (Cost studies undertaken independently of the department whose functions are being studied are of doubtful value.)

An Example: The Spare Parts Problem

Cost accountants can be helpful in any area where operating management has a problem of determining relative merits of alternative actions which can be reduced to the common denominator of dollars and cents. To illustrate this point let us consider a specific problem which might be typical of any utility. Production management of a large utility is concerned with the substantial investment in spare parts which are presently maintained for power plant equipment. Two basic considerations are pertinent. The first involves the purchase of new parts and the second involves the retention or scrapping of existing parts.

The purchase of spare parts is analogous to the purchase of insurance against extended breakdown of equipment. Immediate availability of the spare part reduces break-down time to a minimum. Failure to have a spare part available extends the break-down period by the time required to procure a new spare part or to repair the broken part. The extension of break-down time resulting from not having a spare part immediately available, then, is what we insure against by the purchase of the spare part.

The problem of deciding whether or not to purchase a spare part thus becomes one of weighing the costs of not having the part available against the investment costs of carrying it over the life of the equipment for which it would be used. Here, the costs of not having the part available would be the value assigned to it as insurance protection. This value would be the insurance premium determined by multiplying the probability of breakdown by the sum of (1) the potential loss in operating efficiency and (2) the cost of a new spare part or the cost to repair the existing part in event of failure. If the investment costs of carrying the spare part over the life of the equipment exceed their insurance value, purchase of the part is not economic.

All this sounds relatively simple. However, two questions which arise im-

EVALUATION OF THE PURCHASE OF A SPARE PART

Expected Life of Equipment	5 years
Salvage Value	Zero
Return Required on Investment after Taxes	6%

I. Value assigned to having spare part immediately available.
(Maximum amount we should consider paying for insurance protection.)

1.	Loss in efficiency - (additonal loss incurred as a result of not having part available) p	$4,000	
2.	Cost of the spare part	1,000	
3.	Insurable loss (1 + 2)		$5,000**
4.	Probability of failure of the part		20%
5.	Maximum economic insurance cost cover insurable loss assuming annual payment (3 x 4)		1,000
6.	Maximum annual insurance cost (line 5 ÷ 5 yr. life)		200
7.	Equivalent maximum single insurance premium (line 6 x 4. 212 — 6% P. W. annuity factor)		842

II. Cost to purchase and carry the spare part over life of equipment (equivalent present day single premium)

Life	Cost of Part	Return Including Income Tax	Property Tax and Insurance	Capital Recovery	Total Cost	Present Worth Factor	Present Worth
1 yr.	1,000	108. 75	23. 80		132. 55	.9435	125. 06
2 yr.	1,000	108. 75	23. 80		132. 55	.8900	117. 97
3 yr.	1,000	108. 75	23. 80		132. 55	.8396	111. 29
4 yr.	1,000	108. 75	23. 80		132. 55	.7921	104. 99
5 yr.	1,000	108. 75	23. 80	1,000	1,132. 55	.7473	846. 35
		543. 75	119. 00	1,000	1,662. 75		

Present worth of investment costs (equivalent present day single premium)	$1,305.66*
From I above, we have the value of the spare part to the Company	842.00
Fromm above, we have the cost to carry the part over life of equipment	-1,305.66
Excess "Insurance Premium" - Net Saving.	$ (463.66)

*Investment costs over life of equipment should provide insurance protection as follows:

$$\frac{\text{cost to carry}}{\text{P.W. annuity factor}} \times \text{Life} \times \frac{1}{\text{probability}} = \frac{1305.66}{4.212} \times 5 \times \frac{1}{.2} = \$7,750$$

** Actual Insurable Loss 5,000

Excess Insurance Coverage $2,750

Under circumstances assumed above, purchase of the spare part cannot be economically justified.

EXHIBIT 1

mediately are: (1) how do we determine the probability of a breakdown and (2) how do we determine the cost of not having a spare part immediately available in event of a breakdown? These are difficult questions best answered by operations engineers. Nevertheless, even rough approximations to right answers are valuable criteria in making decisions to buy or not to buy spare

SHOULD EXISTING PARTS BE SCRAPPED OR RETAINED?

Part - Motor for Gantry Crane (original cost)	$1,000.00
Remaining life of equipment for which spare is maintained	Five years
Present salvage value	Zero
Rate of return required after taxes	6%

I. Value assigned to having the part immediately available - Revaluation of part based on current physical and economic conditions.

1.	Loss in efficiency (additional loss incurred as a result of not having the part available)	Zero
2.	Cost to repair the part = to book cost	$1,000.00
3.	Insurable loss	$1,000.00**
4.	Probability of failure of part	20%
5.	Maximum economic insurance cost (3 x 4)	$ 200.00
6.	Maximum annual insurance cost (line 5 ÷ by remaining life)	$ 40.00
7.	Equivalent single insurance premium - Present value of part to Company (40 x 4.212)	$ 168.48

II. Cost to retain spare part or savings if part is scrapped - Using the concept of "sunk costs" which excludes the return portion of investment charges as well as the capital recovery (charge to expense), our cost to carry the spare part becomes $305.61 as shown in the following table. In effect this is an evaluation of the benefit of an immediate income tax reduction plus elimination of the equipment.

Remaining Life (Years)	Book Cost	Income Tax Applicable to Return 4.875%	Property Tax and Insurance 2.38% of $1,000	Total Savings	Present Worth Factor	Net Savings
1	$1,000	$48.75	$23.80	$72.55	.9434	$68.44
2	1,000	48.75	23.80	72.55	.8900	64.57
3	1,000	48.75	23.80	72.55	.8369	60.91
4	1,000	48.75	23.80	72.55	.7921	57.47
5	1,000	48.75	23.80	72.55	.7473	54.22
		$243.75	$110.00	$362.75		$305.61

Present orth of cost to retain part (equivalent present day premium)	$305.61*
From I above, we have the present worth of the part to the Company	$168.48
From II above, we have the cost to retain the part	-305.61*
Excess Insurance Premium - Net Saving *	$137.13

*Cost of retaining spare part should provide insurance protection as follows: $\frac{\text{Cost to Retain}}{\text{P. W. Factor}} \times \frac{\text{Life}}{1} \times \frac{1}{\text{Probability}} = \frac{305.61}{4.212} \times 5 \times \frac{1}{2}$ $1,814.00

**Actual insurable loss	$1,000.00
Excess Insurance Coverage	$ 814.00

Under circumstances assumed above, retention of spare part cannot be economically justified.

EXHIBIT 2

parts. Exhibit 1 is a sample calculation illustrating application of the principles described above.

Closely related to the decision to buy or not to buy spare parts is the decision to scrap or retain spare parts after they have been carried in stock for varying periods of time. Here the value of the spare part to the company is still measured by the insurance protection it affords and it is still calculated by multiplying the probability of a breakdown by the sum of the potential loss in efficiency resulting from not having the spare part immediately available and the cost of a new part or repair of the damaged one. In effect, we have revalued our spare part on the basis of today's economic and physical considerations. To the extent that original book cost exceeds revaluation of the spare part, we have sustained an unrecognized book loss. The question now becomes—should we recognize our loss by scrapping the part and take advantage of an immediate reduction in income taxes or should we retain the part for the remaining useful life of the equipment for which it was originally purchased and continue to pay property taxes over that period. Exhibit 2 is a calculation based on data furnished by the production department illustrating application of the principles set forth above.

A further aid to evaluating the economics of retaining or scrapping spare parts is illustrated in the table comprising Exhibit 3. This reflects the results of a series of computations at five-year intervals of equipment life and varying probability of failure levels. Computations are based on the assumption of (1) zero present-day salvage, (2) zero loss in efficiency from failure of the part in question and (3) additional costs to repalace or repair the defective part equal to its original costs. Operations engineers have indicated that these assumptions are valid for many existing spare parts serving older equipment. Use of the table is illustrated by reference to the example evaluated in detail in Exhibit 2. Additional savings in scrapping spare parts will result from release of storage space and elimination of record keeping. Neither of these factors is reflected in the costs presented in this study.

Using Operations Research

The term, "operations research," has become a much used and perhaps still not too well understood term over the past few years. It can be defined in broad terms as the application of scientific techniques to management problems. In operation this technique usually starts with the assignment of a group of individuals with varied technical backgrounds to function as a team to undertake the solution of a hitherto unsolved management problem. Technical backgrounds represented in a typical operations research team may include mathematics,

SPARE PARTS FOR POWER PLANTS

Net saving over estimated remaining life of equipment in scrapping spare parts per $1.00 of original cost (Expressed in equivalent present day dollars)

ASSUMPTIONS:

Salvage value of part = Zero
Cost to replace or repair equipment if spare is not available equal to original cost of part.
Losses in efficiency resulting from breakdown = Zero
Property taxes based on 1956 rates.

Probability of Need	REMAINING LIFE OF EQUIPMENT						
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years	35 Years
5%	.263	.497	.672	.803	.902	.976	1.031
10	.221	.460	.640	.775	.876	.953	1.010
15	.179	.424	.608	.746	.851	.930	.990
20	.137*	.387	.575	.717	.825	.907	.969
25	.095	.350	.543	.689	.800	.884	.948
30	.053	.313	.510	.660	.774	.861	.928
40		.240	.446	.602	.723	.815	.886
50		.166	.381	.545	.672	.769	.845
60		.092	.316	.488	.621	.723	.803
70		.019	.251	.431	.569	.677	.762
80			.187	.373	.518	.632	.721
90			.121	.316	.467	.586	.679
100			.057	.259	.416	.540	.638

The above figures do not include cost of storage facilities or cost of maintaining records. Addition of these factors would result in increased savings.

*Referring to the example in Exhibit 2, we find remaining life and probability of failure estimated at 5 years and 20%, respectively. Referring to the above table under the 5 year column opposite the 20% probability factor, we find a saving of $0.137 per $1.00 of original cost of the spare part. Since in the example the total original cost of the spare part amounted to $1,000, evaluation of the total net saving would be shown as follows:

Original cost of spare part	$1,000
Net savings per $1.00 original cost — from table	.137
Net savings from scrapping part	$137.00
From Exhibit 2, we show a net saving from scrapping spare part of	$137.13

EXHIBIT 3

statistics, engineering and accounting. Required backgrounds will vary with the nature of the problem involved. Personnel from affected departments should participate with the research team. A cardinal requirement of the operations research team approach is that it have the blessing and active support of top management.

Problems such as production scheduling, inventory management and optimum location of warehouse facilities provide appropriate challenge to the operations research team. The first step is to observe cause and effect relationships of the problem at hand. The second step is to construct a mathematical model which shows the relationships of the chief variables. The third step is to experiment with the model to see how accurately it describes the real physical situation. Revisions in the model will probably be made during this step. The fourth step is to develop a theory on the basis of the tested mathematical model. This theory should permit prediction of results within specific limits with a reasonable degree of confidence. The fifth step is to control results through knowledge gained of the relationships of the variables involved. To the extent that results can be controlled, more intellingent planning will be possible and costs will be reduced. A typical solution to an operations research problem involves a minimization of total cost applicable to the operations being considered where minimization of the costs of individual operations would tend to result in a conflict of interest.

Let us consider application of the operations research approach to an inventory of construction and maintenance materials in an electric utility. Here we find the typical conflict of interests. Construction and operation departments want to be assured of adequate inventories at all times so work can proceed as scheduled. The inventory control staff wants to keep stocks at a minimum to reduce investment and storage costs. The purchasing unit wants to order in large quantities to take advantage of quantity discounts and to reduce the volume of orders. Optimizing the relationship among these conflicting interests to arrive at a minimum over-all cost of operation becomes the objective of the research team.

All factors related to the inventory problem are observed and the interrelationships studied. (Step 1). Total usage by material item, variability of demands, cost of carrying inventory, costs of inventory shortages and costs to order, all become factors that have to be evaluated. In this step the accountant's job is to place a dollar value (quantify) on the variable costs of ordering, the costs of carrying inventory and the costs of inventory shortages. He must determine what costs are applicable in view of circumstances surrounding the problem. Many fine lines are drawn in this process. For example, if existing warehouse space is at a premium, cost of space should be a factor in the inventory carrying charge. If existing facilities are ample and would not be affected by changing inventory levels, storage costs would not be included. Likewise, with order costs and accounting costs, we have the option of using variable costs or total costs or some compromise between the two. Determining the cost of an inventory shortage on a specific item is an experience in itself. Costs of expediting, costs of substituting other items, and costs of idle crews are all considerations. Deci-

sions on cost are often, of necessity, theoretical but they should reflect the best judgment of the conditions affecting the problem at any given time. Obviously, costs should be reviewed periodically with changing conditions.

A mathematical model is developed (Step 2) which describes, as accurately as possible, the observed relationship between the variables. In this case the variables are the costs of ordering, the costs of carrying inventory and the costs of a shortage. More than one model may be necessary to define different physical relationships existing in various classes of inventory.

Experiments are conducted with the model developed. (Step 3). In the inventory problem, an experiment could be conducted by gathering data for a sample group of items for a period of approximately two years. Optimum order quantity and re-order point for each item of the sample would be calculated by use of the model. These calculations would be based on actual usage and lead time over the two-year period of the sample, together with individual item costs of ordering, carrying and shortage as determined by the accountant. A test for validity of the model could then be obtained as follows:

1. Take order quantities and re-order points for each sample item calculated from the model.
2. Simulate the model system over the period of the sample using *actual* demands but ordering in quantities and at times as determined from the model.
3. Compare cost of "model" system with actual costs with respect to number of orders placed, average inventory levels and shortages experienced.

At this point there would probably be some revisions to the model, or to the costs in the model, wherever comparison of the two systems pointed out inconsistencies in the model.

A theory would be formulated (Step 4) on the basis of the tested model. In this certain characteristics of the sample items tested would be defined. From these characteristics, we could generalize with respect to other like items of inventory not included in the sample. Through this type of analysis, we would predict total annual inventory costs for given classes of materials at varying levels of activity.

In Step 5, we start to control results through our knowledge of the relationship of the variables. We would install a system of determining order quantities and order points based upon our experiments with the model. Our system could be manual or it could make use of the latest in computing equipment, depending upon the requirements of the business. We would develop standards of performance for inventory levels for various classes of materials and for various

levels of activity. We would be ever-alert to changing economic conditions and to seasonal variations in usage, in order to introduce correction factors into the system at timely intervals. We would also reflect changing costs of ordering materials, carrying inventories and shortage costs. Thus, our newly found knowledge would enable us to control inventories at optimum levels through our ability to predict these optimum levels and to effect continuous changes in our system of control to reflect changing external conditions.

Another type of project undertaken by operations researchers is the determination of proper number and location of warehouses and sales offices which would result in an over-all minimization of operating and investment costs. Services to customers, transportation costs, proximity to demand and inventory investments would be some of the factors to be considered. Here, again, the cost accountant plays an indispensable part in assigning appropriate dollar values to alternate plans.

Impact of Electronic Data Processing Systems

The major immediate benefits of electronic systems, if properly designed, come from an objective review of major areas of the company's operations, a definition of essential data requirements and the integration of these requirements into a complete system. Requirements of electronic data processing will force a degree of standardization, accuracy and consistency in clerical operations not possible under less sophisticated data processing systems. More rigid standards of management performance will be enforced at all management levels. Electronic data processing systems should be designed to operate on the exception principle. Management is not concerned with the multitude of transactions that are in order but with the account that is overdue, the shipment that has not arrived, unscheduled uses of material, dangerously low inventory levels and any other situation which constitutes an exception to plan. These will be reports upon which action must be taken.

In an electronic data processing system, information will be captured at its source in some form of common language where it can be used in all subsequent operations without manual transcription or rewriting. Duplicate and overlapping functions will be eliminated. Essential functions will be centralized in one location. Central information centers will take the place of multi-copy forms and duplicate files. Standards of performance will be set up for all major functions. Each report will serve specific needs agreed upon by those responsible for the function.

Most larger utilities provide ideal testing grounds for electronic data processing computer systems. The volume of paperwork and the continuity of operation provide a vast potential for electronic data processing. Although costs of programming and installing systems have almost invariably exceeded estimates by substantial margins, to the extent that the costs of computer installations are currently being scrutinized by management with a jaundiced eye, electronic data processing still offers the potentials first promised. The job of achieving these potentials, however, is more difficult than anyone imagined a few short years ago and it is virtually impossible without intelligent systems planning and the sympathetic support of top management.

Evolution Necessary

To this point, we have dealt with the usefulness of cost accounting in developing information needed in managing public utilities and with two new tools of management, namely electronic data processing and operations research. These concepts can well provide the means for the evolution in management which is necessary to achieve our twin objectives of making costs the guidepost of management decisions and of making the job of president one that can be effectively handled by one man. The success of these objectives depends upon recognition by the president and top management of the need for a change, together with a willingness to face realities in making the change. Then, with continuing demands for economy by the president of the company, expression of these demands in appropriate budget and control systems and, lastly, by providing operating management with a team of specialists to assist in improving their operations, the stage is set for a gradual evolution in utility management methods and the successful achievement of our objectives.

Medical Group Income Distribution Accounting

by R. L. NEWELL and G. A. MAHON

As TIME GOES ON, more and more accountants will have occasion to advise physicians in group practice on one of their most important organizational and accounting problems—income distribution to the physician-owners. In 1956 the Directory of the American Medical Association listed about 218,000 licensed physicians in the United States, 200,000 of which were in some form of practice. At the present time, while less than 10 per cent of the physicians are in established medical groups, many more are in partnerships or are sharing office expenses with another (or others). The matter of income distribution to a physician in a two-man partnership is as real a problem to him as it is to a physician in a thirty-man partnership. It is our hope that this article will provide some clues to the solution of these problems.

The future of group medical practice is excellent with our growing population and increased specialization in the medical field. Recent surveys have shown that 25 to 35 per cent of medical school graduates list group practice as their first choice. Older groups are expanding and many new groups are being formed each year in all parts of the country. What was once predominantly a Midwestern form of medical practice has spread all over the country and has been widely accepted by patients and the medical profession. Group practice is not necessarily a more remunerative form of practice than sole practice, but it has many advantages which appeal to today's younger physicians. Most important is the availability, which it makes possible, of well-trained specialists in all fields of medicine for consultations on medical problems. Secondly, a competent colleague is available to take care of a physician's patients during days off, vacations and periods spent in post-graduate study. This enables the busy physician to have some free time and to feel confident that his patients will be properly cared for. A third factor is that a group can better afford the initial capital expenditures and the high operating expenses involved in maintaining the essential X-ray and laboratory facilities.

Medical groups may be organized as partnerships, corporations or associations. However, we shall address ourselves here only to compensation problems peculiar to partnerships since the large majority of medical groups are organized in that form. Regardless of the plan used for distributing partnership income, a new physician is usually taken into the group at first as an employee. He is paid a salary which may be adjusted from time to time until he is admitted to partnership. Generally, a physician has completed his internship

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ROBERT L. NEWELL is Business Manager, Nicollet Clinic, Minneapolis, Minnesota. He has been associated with this firm since 1948. Prior to this he was with Lasher Carpet Co. **GEORGE A. MAHON**, Minneapolis Chapter, 1948, is Director-Management Controls, Investors Diversified Services, Inc., Minneapolis, Minnesota. He was previously Manager, Peat, Marwick, Mitchell & Co. Prior to this Mr. Mahon was associated with the Federal Cartridge Corporation.

and residency training for his speciality before he is employed by a group. Because of today's shortage of well-trained physicians, he is usually offered a partnership within a period of one to three years after his employment. A good system of income distribution should do two things:

1. Be fair and equitable to the physician-owners.
2. Attract new, well-trained physicans to the group.

Unless these two criteria are met by the plan, the group will not grow and will gradually cease to be a real medical center. Only by the addition of new men, new methods and new techniques will the group be able to keep up with the advances in medicine.

Three Income Distribution Methods

The most widely used systems of income distribution in medical partnership are:

1. Equal distribution to all full partners.
2. A "point" system under which a multiple factor formula is used to determine the individual physician's contribution to the group.
3. A system of allocating joint costs against individual partners' gross billings.

Each of these systems has advantages and disadvantages, which we will explain later in this paper. First, let us describe them in somewhat general terms.

Equal distribution to all full partners is perhaps the most common method of distributing partnership income. It has appeal because of its simplicity and because of the fact that every physician knows clearly where he stands. The special problem here is to determine an acceptable compensation base for new partners. Even where the equal distribution concept is adhered to, the older partners are often unwilling to share the fruits of an established practice equally with a new-comer. A typical "break-in" arrangement would be for a new physician to be on a salary for two years and then to become a partner with a 70 per cent share of a full partner's income. His percentage might increase at 5 per cent per year so that he would attain a full partner's share at the end of the sixth year. The percentage factors would vary in individual cases. Age, training and experience would all be considered in determining the length of the "break-in" period. Supply and demand are also important factors in the bargaining position of the new physician. For example, a specialist in the diseases of ear, nose and throat can pick and chose the terms under which he will join a group today, because of the great shortage of men qualified in this field. Internists and surgeons are relatively more plentiful, so these specialists might have to accept less favorable terms.

The second most commonly used method of income distribution is the so-called point system. The members of the group set values on the factors they feel measure a man's worth to the organization, such as age, training, experience, certification in his specialty, the need for his specialty in the group, etc. In addition, they may evaluate his professional standing in the community, dollar value of services rendered patients, drawing power based on new patients and referrals, time spent in research and teaching, number of publications, teaching appointments, time spent in the management of the group's affairs, service on hospital staffs and hospital boards, etc. From some combination of factors such as these, a formula is derived which assigns to each partner a portion of total net income which theoretically, at least, recognizes his individual contribution. This system can be used as a basis for distributing profits after the results for

a given year have been determined or it can be used as a basis for determining compensation during the current year. Use of the latter variation may obviate the necessity for extensive use of partners' drawing accounts.

Accountants engaged in working with medical groups can render a valuable service by working out formulas which will give effect to factors the partners feel are important to recognize. The accountant's skill will also be needed in setting up a system of records that will provide accurate figures on the factors which can be measured, such as new patients, referrals, dollar charges by physicians, cost information by departments and time spent at the clinic. On the intangible factors, the accountant can see that they are evaluated reasonably and that the mathematics and computations are correct. If there are errors in the compilation of the data, the physicians will tend to distrust the entire system.

A somewhat less common method for distributing income may be called the cost allocation method. This system is based on cost allocation principles used in overhead distribution problems in cost accounting. In this plan, the collections derived from billings to patients by individual physicians are kept separate in the accounting records rather than being pooled, as in the other plans. Expenses which are attributable directly to a particular physician's activities are charged against his collections directly, and joint costs or indirect expenses are allocated against the various physicians according to some "use basis" formula. The resulting net amount of collections, less direct expenses and a share of indirect expenses, represents a particular physician's income for the period.

Pros and Cons of the Alternatives

The advantages and disadvantages of the various ways to distribute income are always an important topic at the meetings of the National Association of Clinic Managers and the American Association of Medical Clinics, the two organizations that represent group practice in the United States and Canada.

At first glance the cost allocation method may appeal to accountants as being a logical and business-like approach. It is similar to determining manufacturing profits by departments or by product lines. However, it is not a particularly good way to determine compensation for a group of physicians because it fails to take into account any intangible factors. Furthermore, as accountants know only too well, cost allocation bases are often arbitrary at best and sometimes cannot be supported on wholly logical bases. When a physician gets the idea that his take-home pay is being decided by what may seem to him the capricious whim of an accountant, there will most certainly be an explosion in the clinic.

The principal argument for equal distribution of income is that it reduces the element of competition within the group and helps to develop a team spirit, which is in the best interest of the group as well as the patient. Many new groups are formed by physicians who are idealistic by nature. Since it is a new, untried venture for them and a common endeavor, they agree to split income equally. The chief argument against equal distribution of income is that, as time goes on, it sometimes becomes evident that all members do not have the same drive, work capacity, rapport with patients, etc. Furthermore, as the group expands, the older members often feel they should receive more remuneration because of their positions as founders. These factors may lead to discord in the group. It is at this point, in an effort to eliminate internal conflict,

that the group may change to a point system of income distribution. The second argument against equal distribution is that the average income of the various medical specialists differs among physicians in sole practice. For example, pediatrics is a time-consuming specialty and yet it is one of the lowest paid specialties. In comparison, a surgeon's overhead is low, his work can mostly be concentrated at a hospital where usually he has fewer patients requiring his care during any one day. Nevertheless, a surgeon normally makes about one-third more than the average pediatrician of comparable training and experience in the same community.

The advantage of a sound point system is that the values can be agreed upon in advance and can be varied whenever the group feels it is necessary. Also, the system can reflect individual differences of an intangible nature and can be designed to point up the variations in income of the different medical specialties. The principal disadvantage is that it can tend to reduce team spirit and divide the group into small competing units. (This is also another disadvantage in the cost allocation method of income distribution.) On balance, however, the writers believe that the point system is best, particularly in fairly large groups where an accountant-administrator is employed. As mentioned before, accurate record keeping is essential to the success of this system.

Point System Illustration

In order to illustrate more fully the way in which the point system operates, the formula used by a nineteen-man group is shown below. Essentially the same plan has been used by this successful group since the 1930's, with only minor changes. In this plan, the point system is used to determine current compensation, rather than profit distribution in retrospect. Thus, in January or February of each year, each partner is assigned a percentage share of profits for the current year. For 1958 the factors used and the weights assigned to each are expressed in the following excerpts from the minutes of partners' meeting held late in 1957:

> "50 per cent of net income shall be distributed upon the basis of the relationship of each partner's bookings averaged for the five-year period preceding the year 1958 to the total bookings of all partners so averaged. 30 per cent of net income shall be distributed upon the basis of the relationship of each partner's booking for the year 1957 to the total of all partner's bookings for the year 1957. 10 per cent of net income shall be distributed upon the basis of the relationship of each partner's number of new patients averaged for the five years preceding the year 1958 to the total number of all such new patients. 10 per cent of net income shall be distributed upon the basis of the relationship of each partner's number of years of membership in the partnership, with a limitation of a maximum of twenty years, to the total years of membership of all partners."

Once the formula is calculated, based on audited records of bookings and new patients, a board of five of the nineteen physicians review the figures. The board has authority to raise or lower the percentage of any partners, based on any intangible factors they wish to consider. As a general rule the board does not deviate from the calculated percentage by more than 5 to 7 per cent, except in setting the income of a new partner whose bookings do not give him an income the board feels is adequate. Any partner can object to his assigned percentage and usually one or two do so each year. The board then reviews the matter and sometimes makes an adjustment.

By observing the factors in the formula closely, the philosophy of the partners becomes discernable. It is clear they feel that individual partner's billings to patients should predominate. This gives recognition to the varying rates of earning power for different specialties and also to varying rates of individual productiveness. The 50-30 split between the first two factors in the formula recognizes the value of long-term service but gives a fairly good "break" to the new member or to an older member whose productivity is increasing more rapidly than the average. In this way, 80 per cent of the income is distributed on a basis similar to that which would prevail if the physician were in sole practice.

The third factor is also favorable to the new or growing partner and it recognizes the value of "new business" in keeping the group alive. This is balanced by the fourth factor which honors the value of seniority.

No attempt is made in this particular plan to place numerical values on intangibles such as service to the community or to the profession. Neither are age, education, etc. is made a part of the formula. Nothing, however, prevents some quantified recognition of these or other factors from being introduced into the formula. Agreement on such matters may be hard to achieve, however, and, in this case, the issue is avoided by relying on the judgment of the five-man board to evaluate these factors. The attitude of the partners toward this plan is summed up by the comments of one who said, "It must be a good formula because everyone is just a little bit dissatisfied but not enough to want to change it."

Compensating Capital Investment Separately

The reader will note that no mention has been made of capital investments by the partners as a factor in distributing income. This is not an oversight, nor does it mean that the capital requirements of medical groups are inconsequential. On the contrary, capital investment in a medical group is an increasing problem as costs of construction and equipment continue to rise. It is not unusual to find a total capital investment of $40,000 to $50,000 per physician in a new, modern group. An outstanding architectural firm that has designed many clinics recommends 1,200 square feet of space per physician which, at $20 to $22 per square foot construction cost, is an investment of $24,000 to $27,000. From $5,000 to $10,000 normally is invested in office furniture and equipment, and the uncollected accounts receivable of an established group will amount to from three to five month's average business.

It is apparent that substantial capital investments are required to set up and maintain a group practice. These funds are usually provided by the partners themselves and they should, naturally, receive some return on their investments. However, this charge should be made against partnership income before profits are distributed rather than as a part of the distribution itself. This distinction may seem a bit academic but, in the medical profession, personal ability, absolute integrity and dedication to the betterment of mankind are the only services which are of value. A physician's personal wealth should not be allowed to affect his compensation for professional services.

Various ways are used to provide a return on partner's capital investments. Perhaps the most common is to pay an agreed rate of return on partners' capital accounts out of net income before it is distributed. In these cases, the partnership holds title to the assets. In other cases, separate corporations are organized to hold

title to fixed assets and the partnership pays a fair rental which covers return on invested capital. In these situations the physician-partners may hold stock in the corporation in varying proportions. There is usually an unequal capital investment in an established group if the physicians are of various ages. A new member usually makes his capital contribution out of earnings over a period of years. A common method is to hold back 10 per cent of a younger partner's income until his capital investment is equal to the average capital investment of the other partners.

Requirements: Simplicity, Sound Compromise

While this article has been written with the problems of group medical practice in mind, many of the principles involved are equally applicable to group practice for architects, consulting engineers, lawyers, accountants and other professions. Each profession will have factors to recognize which are peculiar to its own practice; other factors which may be common to all may require different weighting by different professions. However, the alternative approaches to the problem of partnership income distribution will be the same.

Accountants who are called upon to give advice to medical practitioners in this field should bear this in mind—"keep it simple". Physicians as a class are not ordinarily trained in, and normally avoid, "figure work" as much as they can. In groups where a business manager is employed, physicians become even more isolated from business matters than they do in sole practice. Consequently, the physician-partners often will not take the trouble to understand complicated formulas and "fancy" systems. Like other people, they will distrust what they do not understand.

Formulas for income distribution touch partners where they feel it most—in their pocketbooks. It concerns intensely personal matters and, because more than one person is involved, it always represents a compromise. From the nature of the problem, therefore, there will be as many income distribution formulas as there are partnerships. In medical practice any formula which keeps the older partners happy, attracts new partners, and promotes good medical care for patients is a sound formula.

Beyond These Covers

Books

Intermediate Accounting

Holmes, Maynard, Edwards, & Meier, Richard D. Irwin, Inc. Homewood, Illinois, 3rd Edition, 1958, 856 pp., $9.

A financial accounting textbook for second year students, this volume has been considerably revised in this edition, particularly with respect to the presentation of income determination. Attention is also given to the statement of (source and use) of funds and a final chapter deals with "actuarial science" and its relevance to accounting.

Integrated Cost Control In The Office

Frank M. Knox, McGraw-Hill Book Co. 330 West 42nd St., New York 36, N. Y. 1958, 293 pp., $7.50.

Approaching his topic via an initial discussion of the "office cost problem," the author, a veteran analyst in this field, deals with the location of responsibility for such costs and the elements of a program for their control. Clerical work measurement, work simplification, automation, and records control are treated in individual chapters.

Audit Practice Case

Arthur W. Holmes and Francis E. Moore, Richard D. Irwin, Inc., Homewood, Illinois. 1958, Fifth Edition, Paper Bound in Four Parts.

A hypothetical Hollingsworth Gear Company is the subject of the equally hypothetical audit "laid out" in these materials, which are:

Part I Introduction and Instructions
" II Audit Report
" III Books of Original Entry
" IV Papers and Miscellaneous Data
" V Ledgers (general and detail)

Proceedings of the Seventh International Congress of Accountants 1957

After page 77, the proceedings (of the International Congress of Accountants) here reprinted are the technical papers presented and these run through page 674 and include report of discussions. Part of the extent of the material is attributable to translations of presentations offered in French and German of the six "business sessions" reported. The titles of two, "Budgeting and the Corresponding Modernization of Accounting" and "Ascertainment of Profit in Business" testify to the general relevance of the material.

Conference of Accountants

University of Tulsa, Tulsa, Oklahoma, 1958, Paper Bound, 84 pp.

Papers presented at the University of Tulsa's 12th annual conference of accountants last April are gathered together in this publication of proceedings. Besides several addresses on oil industry accounting and its problems, papers reproduced include "Operations Research in Planning and Control of a Manufacturing Operation" and "Management Accounting Problems in Foreign Operations" (by Walter B. McFarland, N.A.A. Director of Research.)

Controllers Congress Convention Proceedings

Controllers Congress, National Retail Merchants Association, 100 West 31st, New York 1, N. Y. $2.25.

These proceedings, Part 1 of a convention which took place in Kansas City last May, make up the September 1958 issue of the *Retail Control*. They will be completed

with Part 2 in the October issue. The material in the present issue centers on employee benefit programs, smaller stores operating problems, delivery operations and electronics.

Uniform System of Accounts For Restaurants

National Restaurants Association, 1530 North Lake Shore Drive, Chicago 10, Illinois, 1958, 3rd Edition, 113 pp., $5.

Prepared for its publisher by the accounting firm of Horwath and Horwath, this revised manual includes a section on "Record-Keeping for the Small Restaurant" and two appendices covering food and beverage cost control, respectively.

Comprehensive Bibliography on Operations Research

Case Institute of Technology (Operations Research group), John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y., 1958, $6.50.

Some 3000 titles of "articles, books, reports, proceedings, etc.," published through December 1956, are listed and classified here. "Access" to topical listings is through a code included in the foreword. Reference to the "function or type of activity" classification points the reader to find his way to title in such areas as "finance," "accounting," "budget," "pricing," and "inventory."

The Dynamics of Management

American Management Association, 1515 Broadway, New York 36, N. Y., Paper Bound, 1958, 139 pp., $3.75.

About a dozen addresses gathered together here (from a general management conference held on the west coast in January) explore current challenges to management and how to meet them. The proceedings are designed as A.M.A. Management Report No. 6. Financial needs, cost "improvement" and long-range planning are topics which were on the agenda and are represented by addresses.

Articles

Thought Processes in Creative Accounting

Colin Park, Accounting Review, July 1958.

A very interesting association of a hypothetical colloquy on "lifo" with logical fallacies identified by Stuart Chase in "Guides to Straight Thinking" (Harper 1956) is offered in the course of this paper. The author suggests that the growth of creative thinking in accounting is dependent on "applying scientific method, eliminating logical fallacies, and using operational approaches to creativity."

The Advertising Budget

Frank D. Robinson, The Controller, August 1958.

An attempt is made here to apply to evaluation of advertising projects, "mathematical techniques to solve problems in determining the best of several alternate courses of action," i.e., the "game theory."

Mathematical Models in Business Accounting

Richard Mattessich, Accounting Review, July 1958.

In this experimental paper, the author points at that model building has a lineage in accounting as well as economics. He concludes, after some difficult exemplifications of accounting statements vis a' vis models, that "there lies a vast, almost unplowed area before the accountant."

A Theory of Depreciation Consistent with Decision-Making

Harold Bierman, Jr. The Controller, August 1958.

The author of this article characterizes it as follows, "It is the argument of this paper

that there is a determinable timetable of depreciation in most cases — The depreciation computations to be developed here — are important data for the purposes of measuring income and appraising the results of managerial action."

Price Level Changes and Financial Statements: A Critical Re-Appraisal

Abraham J. Briloff, Accounting Review, July 1958.

Throughout this thoughtful paper, there is a tone of appeal that the problem of the effect of inflation on reported income (and resulting taxation) be studied with the interests of all segments of the economy in mind and "not merely — companies with large investments in plant and equipment."

Financial Coordination Through Top Management

R. Burt Gookin, Cost and Management, July-August 1958.

An extremely comprehensive and somewhat extended paper by the controller of a large food processing company, this article dwells upon company organization and "communication mechanisms" before discussing the essential place and activities of the controller's department and illustrating in tables and charts the information developed for management guidance.

Accounting and Economics Reciprocally Indebted

Kenneth W. Perry, Accounting Review, July 1958.

This brief, well-titled paper includes the following in its closing comments, "Since the modern accountant cannot properly interpret financial records and history without giving due consideration to the fundamental economic theories involved, a knowledge of economics appears to be an essential part of his equipment. Similarly, the modern economist needs the discipline of exactness and appreciation of quantitative factors which accounting gives."

Setting a Standard for Your Company's Return on Investment

Harvey O. Edson, The Controller, September 1958.

Directed to the significance of return on investment figures, this paper suggests "at least three important elements in appraising, comparing, and establishing an ROI objective: (1) industry sales penetration (2) patents and special processes, (3) competitive conditions." The paper closes with a set of "bench marks," the first of which is "for a total company return, a range of 20 to 35% before taxes would be quite satisfactory."

The Future Development of Accounting Theory

Raymond C. Dein, Accounting Review, July 1958.

A long perspective on the contents of accounting textbooks in America is part of this presentation in which accounting thought is seen in need of expression which will both clarify and delimit it, i.e., "the functions of accounting must be much more explicitly formulated."

Control and Evaluation of Capital Expenditures

Gordon Shillinglaw, Business Budgeting, September 1958.

This is a long *and* short-range planning article, with some attention to "post completion audits" and disposal of facilities when it will improve profit to do so. The author comments that any "current reductions in the size of the capital budget increase the importance of sound approaches — The smaller the amount of funds available, the more vital it is that these funds be expended carefully."

Training for an Accounting Career

R. J. Canning, Accounting Review, July, 1958.

Described in this paper is General Electric Company's "financial training program," which includes, "selective recruitment and employment, comprehensive and thorough training, and careful appraisal and prompt promotion."

Problems of Cost Control Under Varying Volume Conditions

Franklin R. Ehmann, The Controller, September 1958.

Not only normal, volume increase, and volume decrease cost control implications are here treated but also—and at some length—product mix with illustrative profit-volume charts. The author comments that the mix problem is interwoven with the other three.

ADDRESSES OF PERIODICALS:

Accounting Review

c/o Carson Cox, College of Commerce, Ohio State University, Columbus 10, Ohio. Single copy: $1.50

The Controller

2 Park Avenue, New York 16, N. Y. Single copy: 60¢

Cost and Management

13 Walnut St., South, Hamilton, Ontario, Canada. Single copy: 50¢

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF THE N.A.A. BULLETIN (Formerly N.A.C.A. Bulletin) published monthly at New York, N. Y., for October 1, 1958

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, National Association of Accountants, 505 Park Avenue, New York 22, N. Y.; Editor, George F. Wyman, 505 Park Ave., New York 22, N. Y.; Managing Editor, None; Business Manager, Raymond P. Marple, 505 Park Avenue, New York 22, N. Y.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and triweekly newspapers only.)

GEORGE F. WYMAN, Editor

JESSIE KERR REVER
Notary Public, State of New York
No. 30-3258425
Qualified in Nassau County
Certs. filed with New York Co. Clerk
Term Expires March 30, 1959

Sworn to and subscribed before me this 12th day of September, 1958.

From The Inside

PAGE 5: *"The time during which a vessel is in port, either discharging or loading cargo, is referred to as "layover" time. The cost of such layover time is treated in various ways. One method is to consider layover time as overhead expense not to be allocated to voyage expense. Another method is to absorb it in voyage expense by having the termination date of one voyage and starting date of another voyage coincide. Still another method is to allocate the expense, either at the end of the year among all completed voyages for the year or to voyages on the basis of a standard allocation percentage."*

PAGE 19: *"The major enterprises of this farm are a shorthorn cattle herd, poultry, and a dairy herd. There are subsidiary operations which support the major enterprises and these have been grouped for control and costing purposes into cost centers. They include pasture expenses, the growing of grain for feed purposes, the growing of hay, costs related to silage, cost related to the operation of the numerous tractors and other major pieces of farm machinery, and farm administrative and other overhead costs."*

PAGE 43: *"The pastor or minister should be consulted so that the budget will reflect his judgment as to the best division of expenditures to provide the total planned ministry program. Effective budgeting requires realistic appraisals of departmental needs and expenditure ceilings within the ability of the congregation to pay."*

PAGE 65: *"The author further believes that the ultimate solution for government accounting is pointed out in the various surveys which have been made, including those of the two Hoover Commissions. Almost without exception, these have hammered away at one point—cost, cost, cost. Then why not proceed to the logical conclusion and state Congressional appropriations in terms of allowable costs?"*

PAGE 85: *"Accountants engaged in working with medical groups can render a valuable service by working out formulas which will give effect to factors the partners feel are important to recognize. The accountant's skill will also be needed in setting up a system of records that will provide accurate figures on the factors which can be measured, such as new patients, referrals, dollar charges by physicians, cost information by departments and time spent at the clinic."*